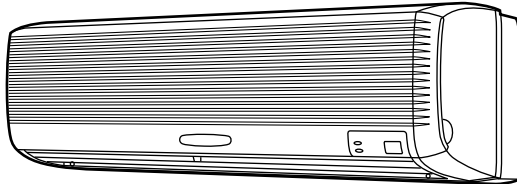


SHARP SERVICE MANUAL

S4709AYX127E/



SPLIT TYPE ROOM AIR CONDITIONERS

MODELS INDOOR UNIT
AH-X127E
AY-X127E

OUTDOOR UNIT
AU-X127E
AE-X127E

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

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SPECIFICATIONS

Models			INDOOR UNIT	OUTDOOR UNIT
			AH-X127E	AU-X127E
Cooling capacitor		kW	3.5 (1.4 ~ 3.8)	
Moisture removal		Liters/h	1.3	
★ Electrical data				
Phase		-	Single	
Rared frequency		Hz	50	
Rated voltage range		V	198 to 264	
Rated voltage		V	220 - 240	
Rated current		A	7.9 - 7.5	
Rated input		W	1650	
Power factor		%	95 - 92	
Compressor	Type		Hermetically sealed rotary type	
	Model		KHV127FEM	
	Oil charge		270cc(SUNISO 4GSD)	
Refrigerant system	Evaporator		Grooved tube type	
	Condenser		Corrugate Fin and Grooved tube type	
	Control		Capillary tube	
Refrigerant volume			720g	
Noise level (at cooling)	High	dB(A)	41	49
	Med.	dB(A)	37	-
	Low	dB(A)	33	-
Fan system				
Drive			Direct drive	
Air flow quantity (at cooling)	High	m³/min.	9.8	28.3
	Med.	m³/min.	8.5	-
	Low	m³/min.	7.0	-
Fan			Close flow fan	Propeller fan
Connections				
Refrigerant coupling			Flare type	
Refrigerant tube size Gas, Liquid			1/2", 1/4"	
Refrigerant pipe sets No.			AZ-24H5E; 5m (16.4 ft), AZ-24H7E; 7m (23ft)	
Drain pipng mm (Inches)			O.D ø 18 (45/64)	
Others				
Safety device			Compressor: Thermal protector	
			Fan motors: Thermal fuse	
			Fuse, Micro computer control	
Air filter			Polypropylene net (Washable)	
Net dimensions	Width	mm	790 (31-3/32)	728 (28-21/32)
	Height	mm	270 (10-5/8)	530 (20-7/8)
	Depth	mm	188 (7-13/32)	250 (9-27/32)
Net weight		kg	8	33

Note: The condition of star(*) marked item are 'IEC 378'.

Models			INDOOR UNIT		OUTDOOR UNIT	
			AY-X127E		AE-X127E	
Cooling capacitor		kW	3.5 (1.4 ~ 3.8)			
Heatpump		kW	4.5 (1.4 ~ 5.7)			
Heating capacitor						
Moisture removal		Liters/h	1.3			
★Electrical data						
Phase		-	Single			
Rared frequency		Hz	50			
Rated voltage range		V	198 to 264			
Rated voltage		V	220 - 240			
Rated current	Cool	A	7.9 - 7.5			
	Heat	A	7.9 - 7.5			
Rated input	Cool	W	1650			
	Heat	W	1650			
Power factor	Cool	%	95 - 92			
	Heat	%	95 - 92			
Compressor	Type		Hermetically sealed rotary type			
	Model		KHV127FEM			
	Oil charge		270cc(SUNISO 4GSD)			
Refrigerant system	Evaporator		Grooved tube type			
	Condenser		Corrugate Fin and Grooved tube type			
	Control		Capillary tube			
Refrigerant volume			790g			
De-Ice system			Micro computer controled reverse system			
Noise level (at cooling)	High	dB(A)	41	49		
	Med.	dB(A)	37	-		
	Low	dB(A)	33	-		
Fan system						
Drive			Direct drive			
Air flow quantity (at cooling)	High	m³/min.	9.8	28.3		
	Med.	m³/min.	8.5	-		
	Low	m³/min.	7.0	-		
Fan			Close flow fan		Propeller fan	
Connections						
Refrigerant coupling			Flare type			
Refrigerant tube size Gas, Liquid			1/2", 1/4"			
Refrigerant pipe sets No.			AZ-24H5E; 5m (16.4 ft), AZ-24H7E; 7m (23ft)			
Drain pipng mm (Inches)			O.D ø 18 (45/64)			
Others						
Safety device			Compressor: Thermal protector			
			Fan motors: Thermal fuse			
			Fuse, Micro computer control			
Air filter			Polypropylene net (Washable)			
Net dimensions	Width	mm	790 (31-3/32)		728 (28-21/32)	
	Height	mm	270 (10-5/8)		530 (20-7/8)	
	Depth	mm	188 (7-13/32)		250 (9-27/32)	
Net weight		kg	8		34	

Note: The condition of star(*) marked item are 'IEC 378'.

EXTERNAL DIMENSIONS

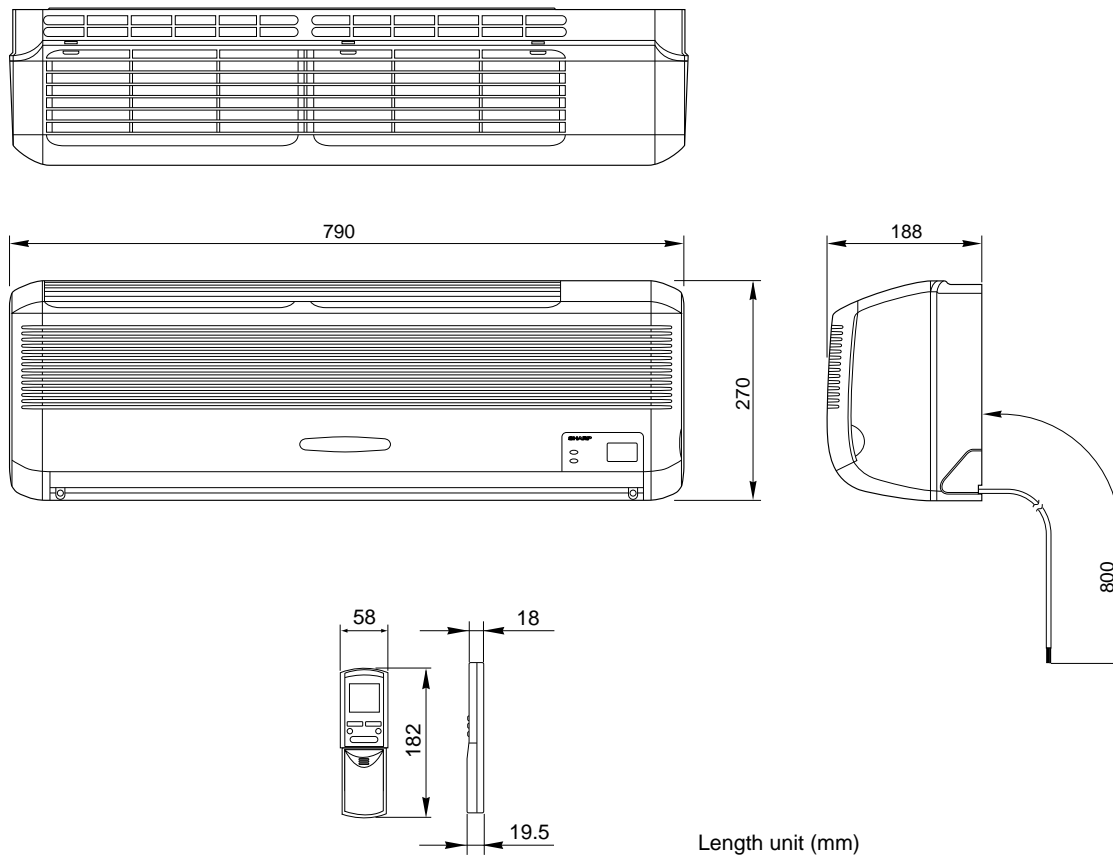


Figure E-1. INDOOR UNIT

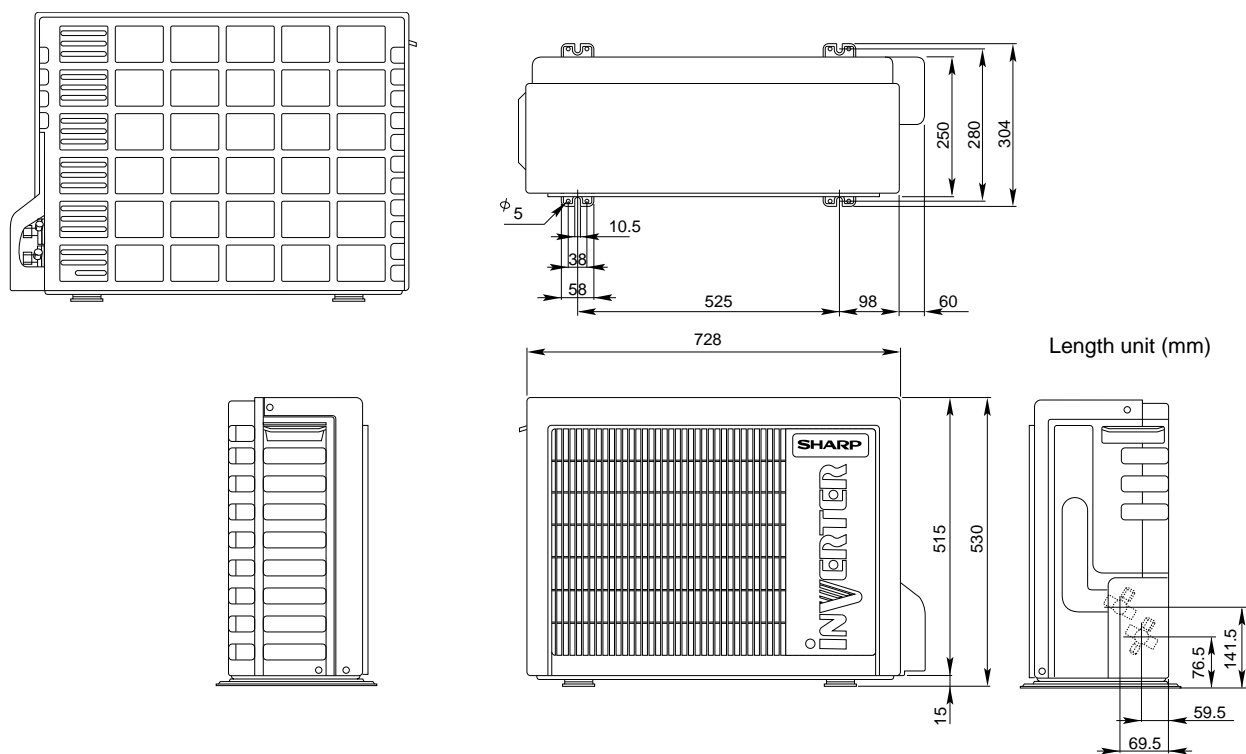
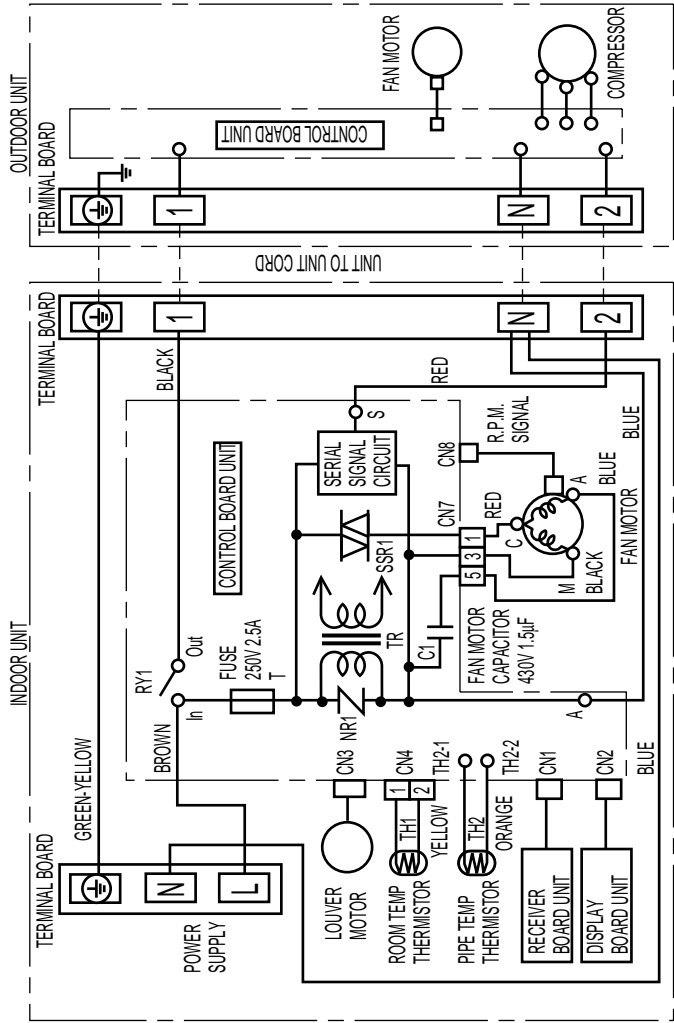


Figure E-2. OUTDOOR UNIT

WIRING DIAGRAMS



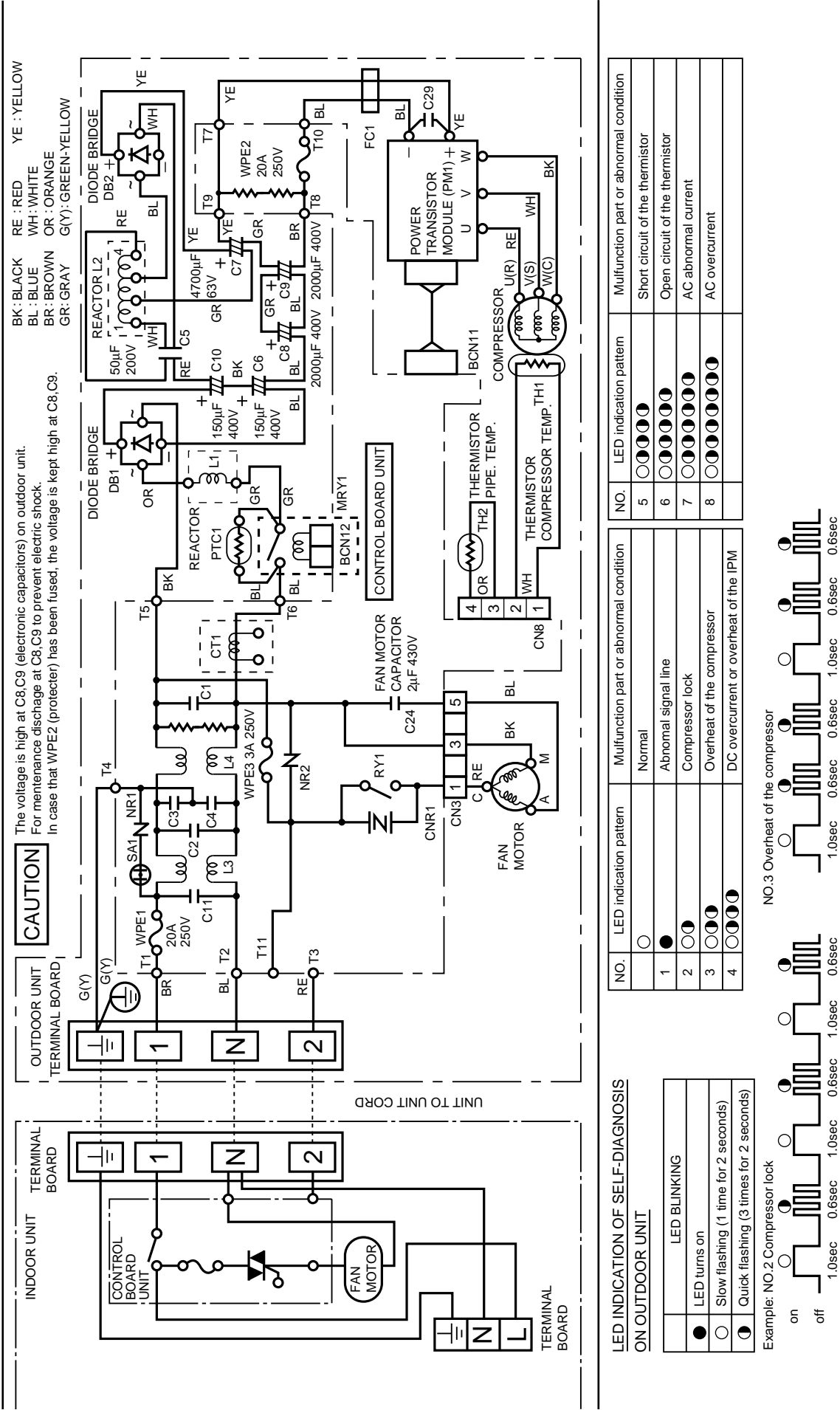
LED INDICATION FOR SELF-DIAGNOSIS

	Blink steps										Abnormal conditions
	1	2	3	4	5	6	7	8	9	10	
<LED yellow blinking> LED yellow blinks 5 times in 10 seconds.	○	○	○	○	○	○	○	○	○	○	Short circuit of the outdoor thermistor
<LED red blinking> Abnormal condition is indicated by the blinking pattern of LED red.	×	×	×	×	×	×	×	×	×	×	Overheat of the compressor
	×	×	×	×	×	×	×	×	×	×	Abnormal AC current
	×	×	×	×	×	×	×	×	×	×	Compressor lock
	×	×	×	×	×	×	×	×	×	×	Open circuit of the outdoor thermistor
	×	×	×	×	×	×	×	×	×	×	DC overcurrent or over heat of the IPM
	×	×	×	×	×	×	×	×	×	×	AC overcurrent
	×	×	×	×	×	×	×	×	×	×	Open circuit of serial signal line
	○	×	×	×	×	×	×	×	×	×	Short circuit of serial signal line
	○	×	×	×	×	×	×	×	×	×	Abnormal fan motor of indoor unit

○ : LED blink
 × : LED no blink

<Indication of the abnormal condition>
 LED yellow and LED red indicate automatically, if the set is in abnormal condition.

Figure W-1. Wiring Diagram for AH-X127E and AY-X127E





Example: NO.2 Compressor lock

NO.3 Overheat of the compressor



ELECTRICAL PARTS

For Model AH-X127E and AU-X127E

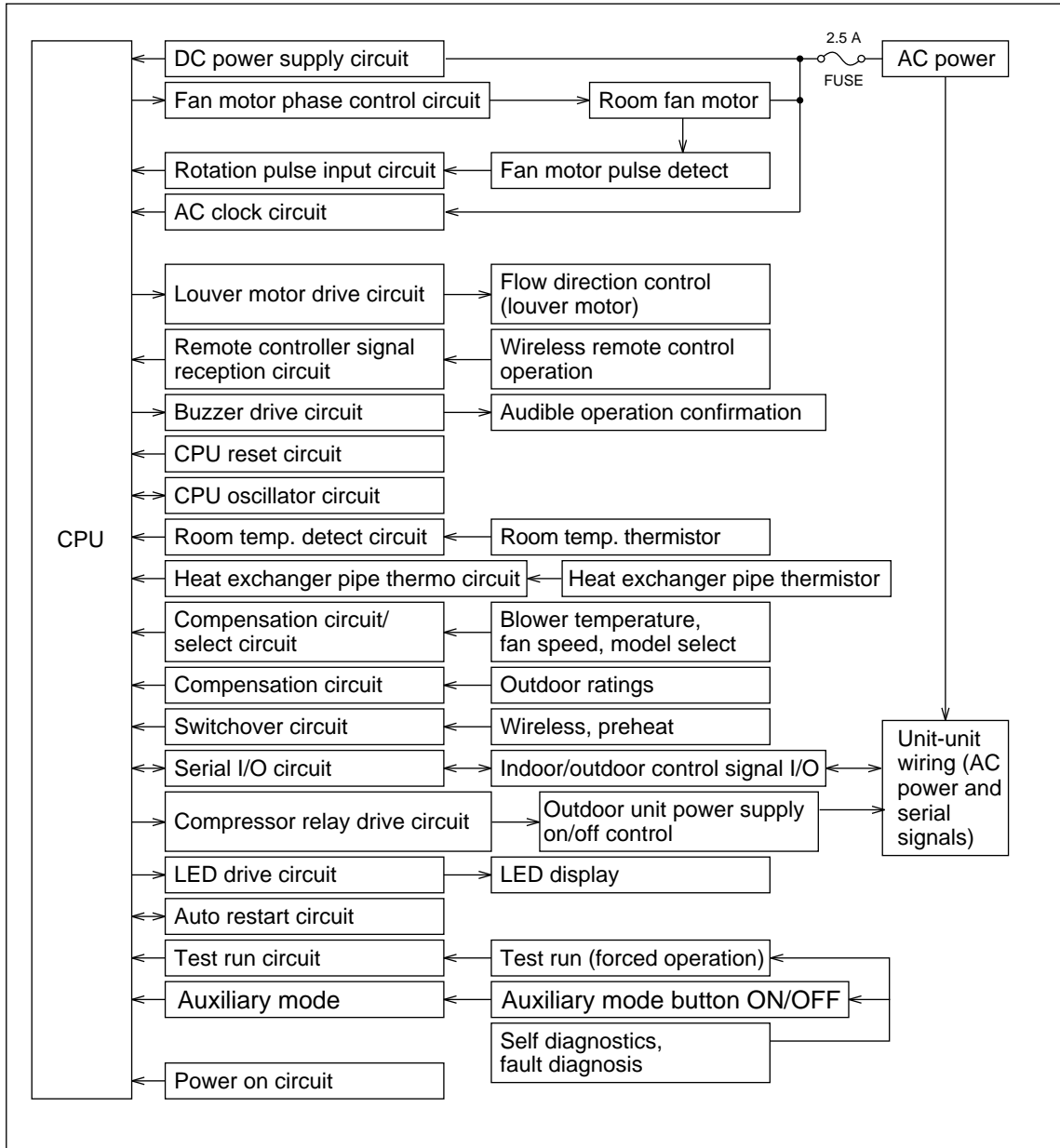
DESCRIPTION	MODEL	REMARKS	SITE
Indoor fan motor	ML-A486	220 - 240V, 50Hz	AH
Indoor fan motor capacitor	—	430V, 1.5μF	AH
Transformer	—	Primary; AC 230V, 50Hz Secondary; AC14.6V, 50Hz	AH
Fuse	—	250V, 2.5A	AH
Compressor	KHV127FEM	3-PHASE Induction motor	AU
Outdoor fan motor	ML-A584	220 - 240V, 50Hz	AU
Outdoor fan motor capacitor	—	430V, 2.0μF	AU
WPE1	—	QFS-GA014JBE0(20A, 250V)	AU
WPE2	—	QFS-GA019JBE0(20A, 250V)	AU
WPE3	—	QFS-GA008JBE0(3A, 250V)	AU

For Model AY-X127E and AE-X127E

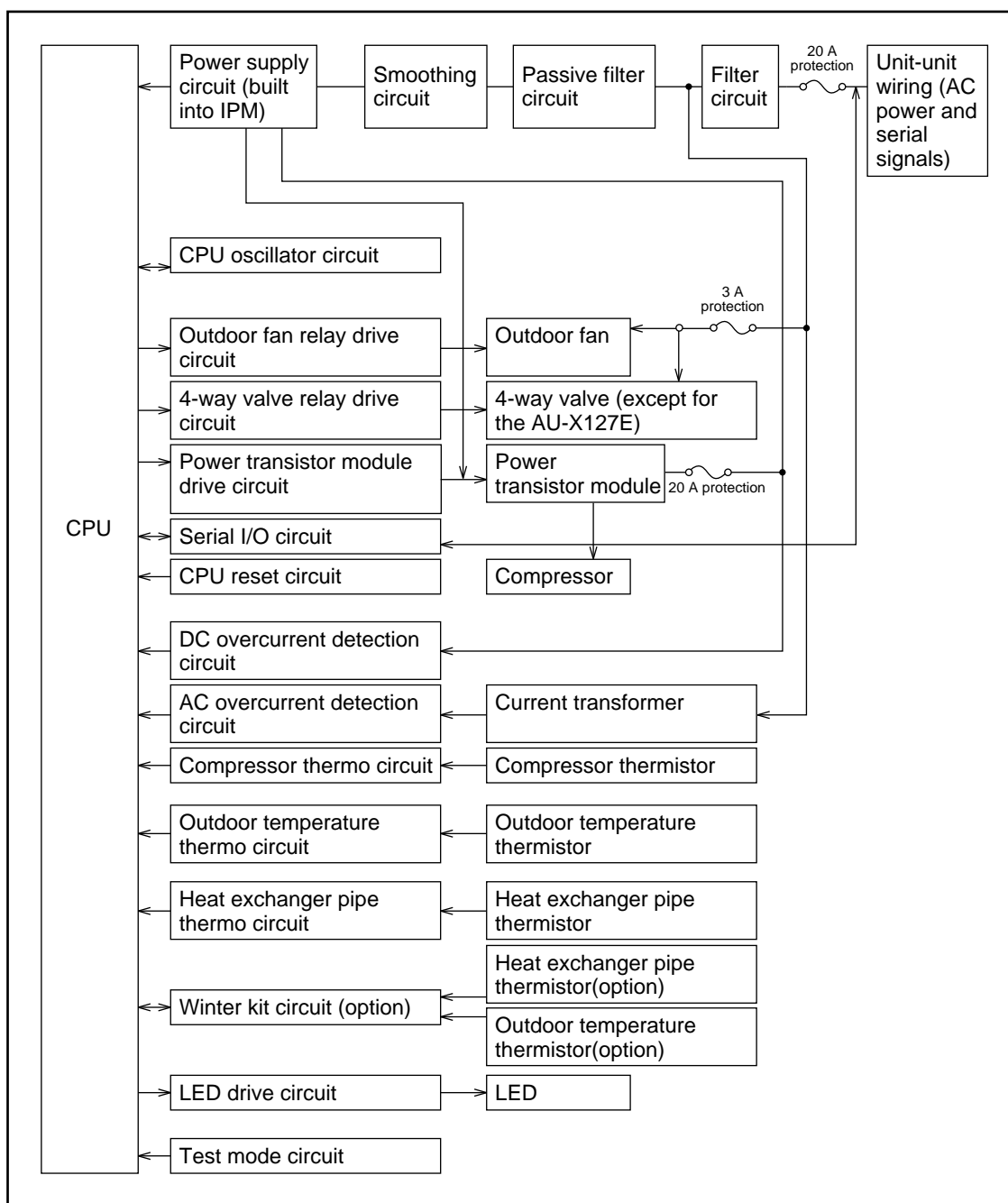
DESCRIPTION	MODEL	REMARKS	SITE
Indoor fan motor	ML-A486	220 - 240V, 50Hz	AY
Indoor fan motor capacitor	—	430V, 1.5μF	AY
Transformer	—	Primary; AC 230V, 50Hz Secondary; AC14.6V, 50Hz	AY
Fuse	—	250V, 2.5A	AY
Compressor	KHV127FEM	3-PHASE Induction motor	AE
Outdoor fan motor	ML-A584	220 - 240V, 50Hz	AE
Outdoor fan motor capacitor	—	430V, 2.0μF	AE
WPE1	—	QFS-GA014JBE0(20A, 250V)	AE
WPE2	—	QFS-GA019JBE0(20A, 250V)	AE
WPE3	—	QFS-GA008JBE0(3A, 250V)	AE

BLOCK DIAGRAMS

INDOOR UNIT for AH-X127E and AY-X127E

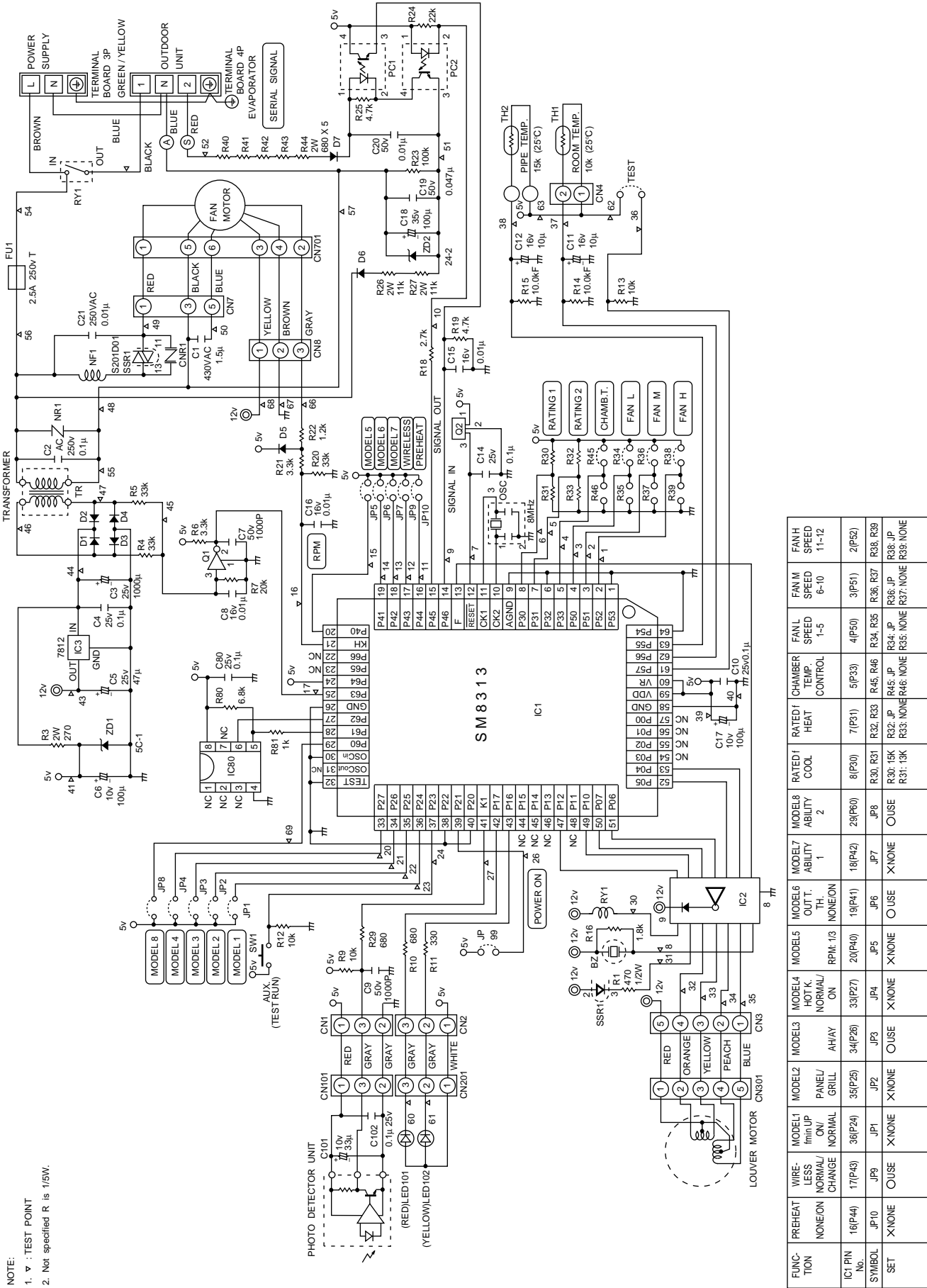


OUTDOOR UNIT for AU-X127E and AE-X127E



MICROCOMPUTER CONTROL SYSTEM

Figure L-1. Electronic Control Circuit Diagram for AH-X127E



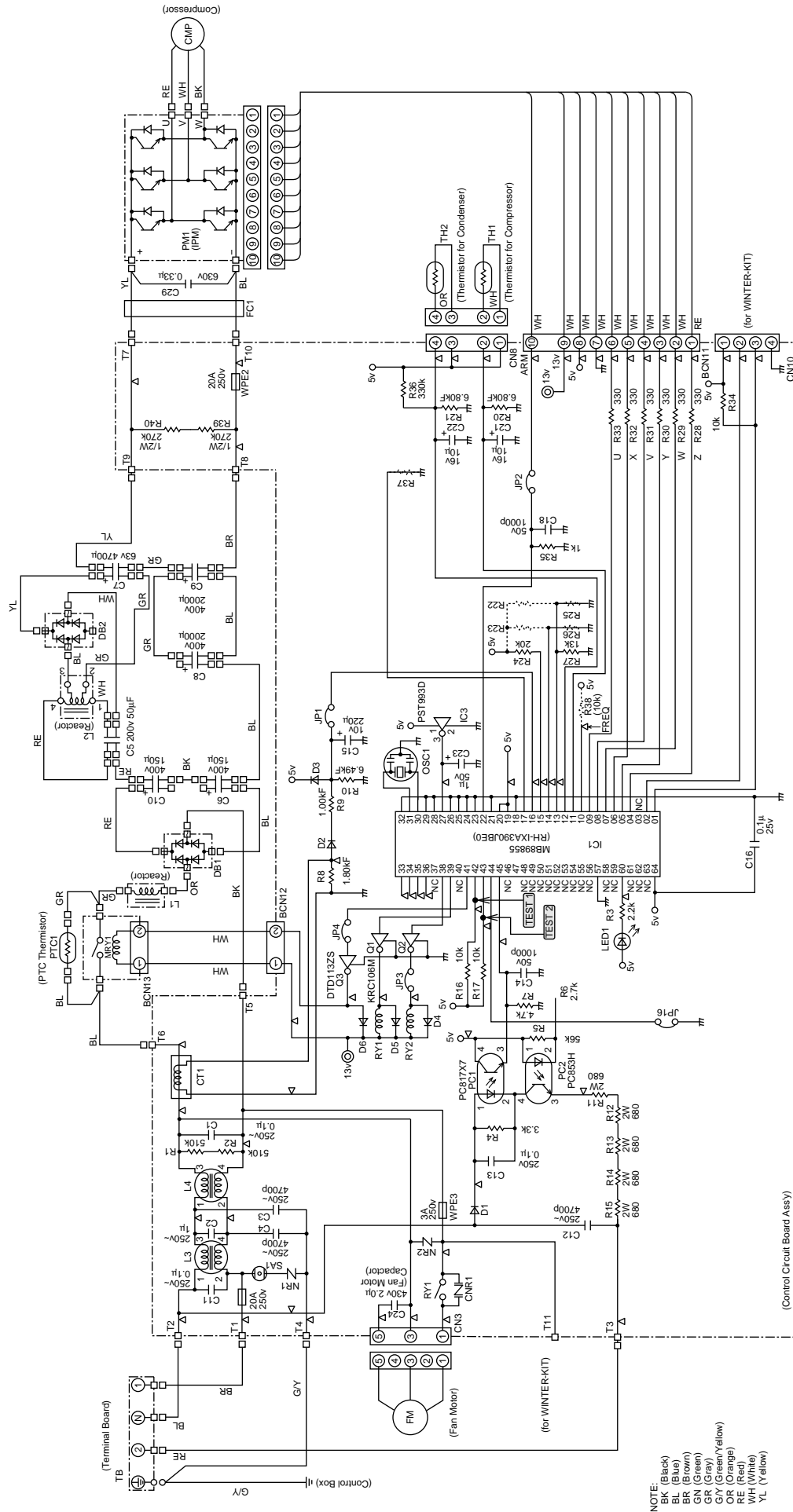
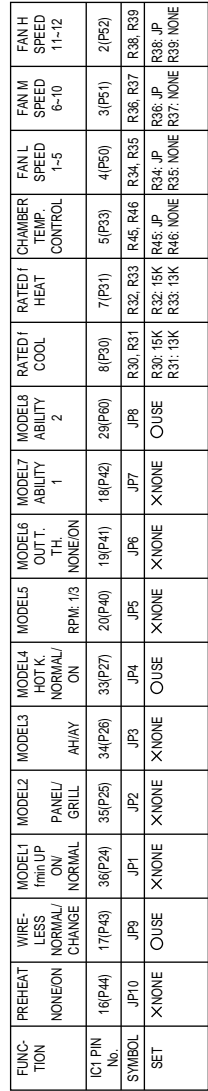


Figure L-2. Electronic Control Circuit Diagram for AU-X127E



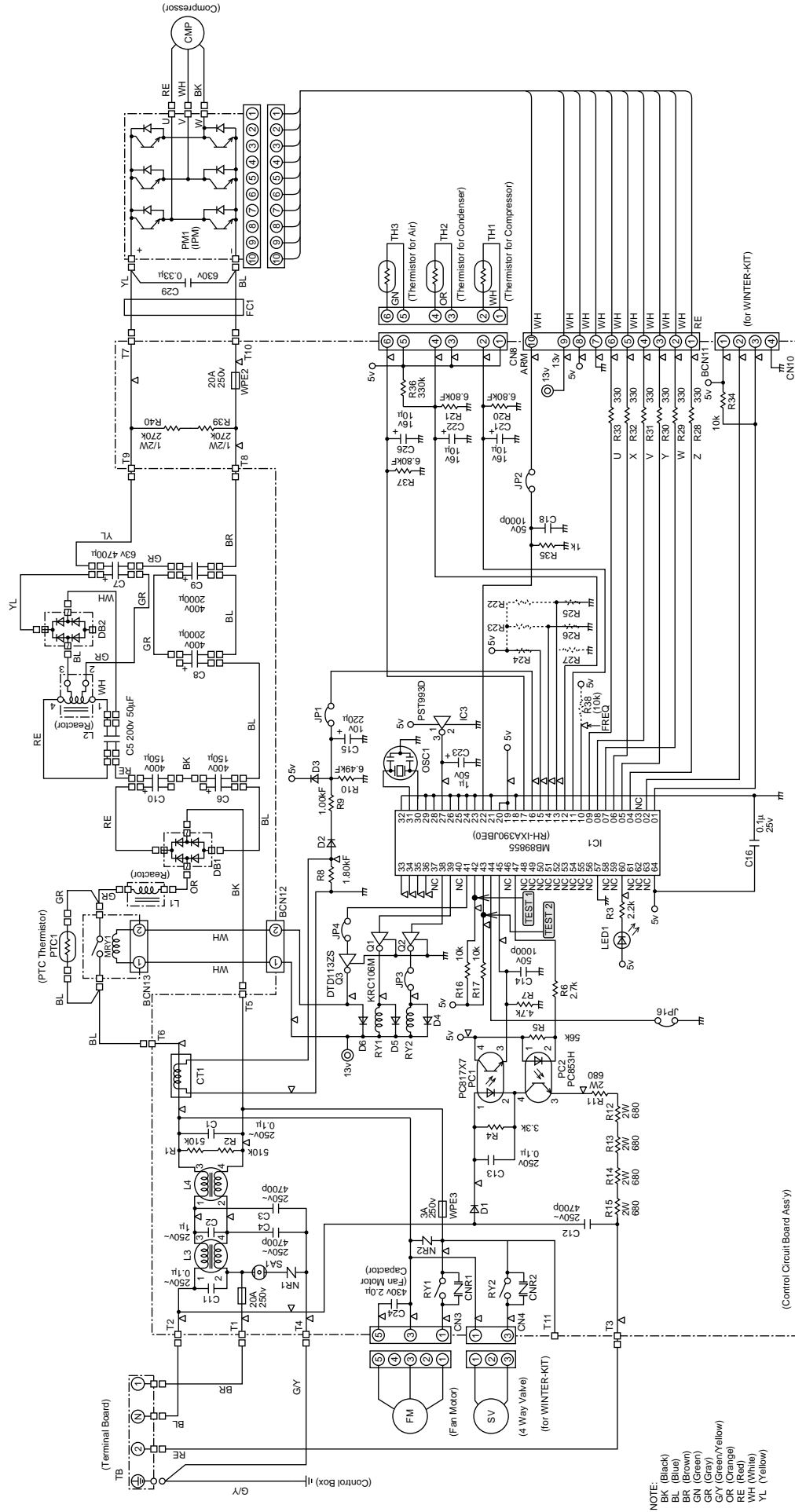


Figure L-3. Electronic Control Circuit Diagram for AE-X127E

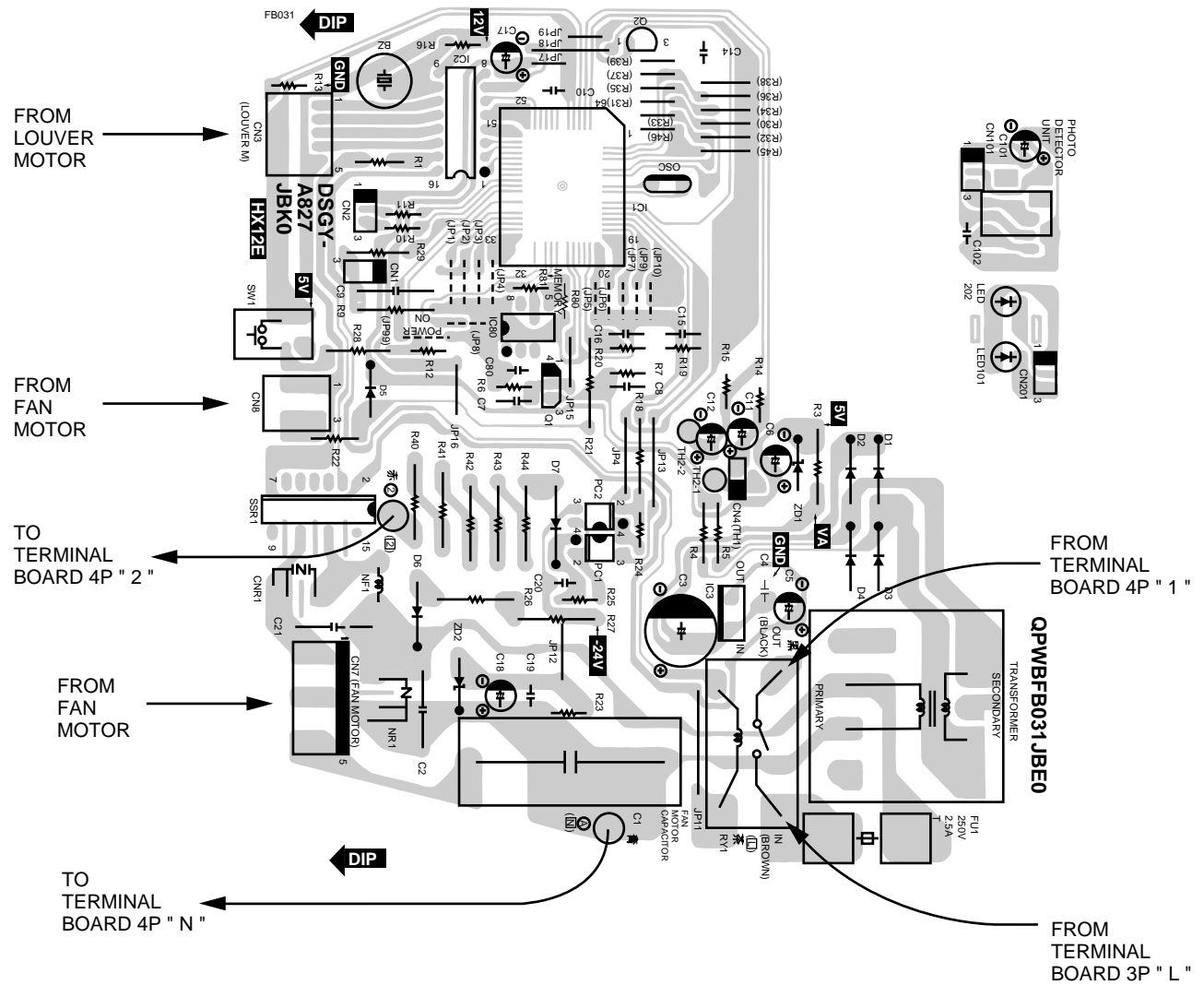


Figure L-4 Printed Wiring Board for AH-X127E

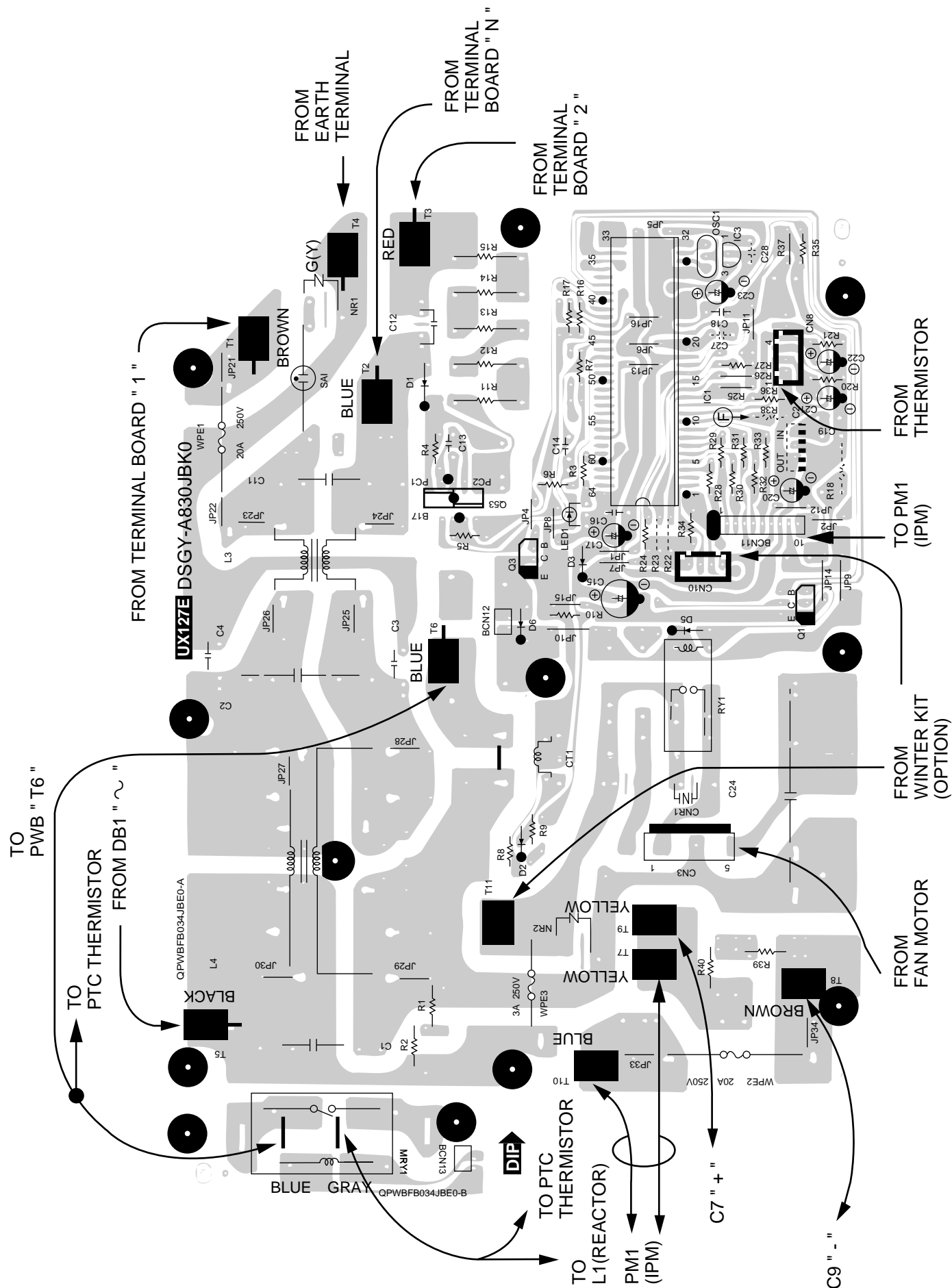


Figure L-5 Printed Wiring Board for AU-X127E

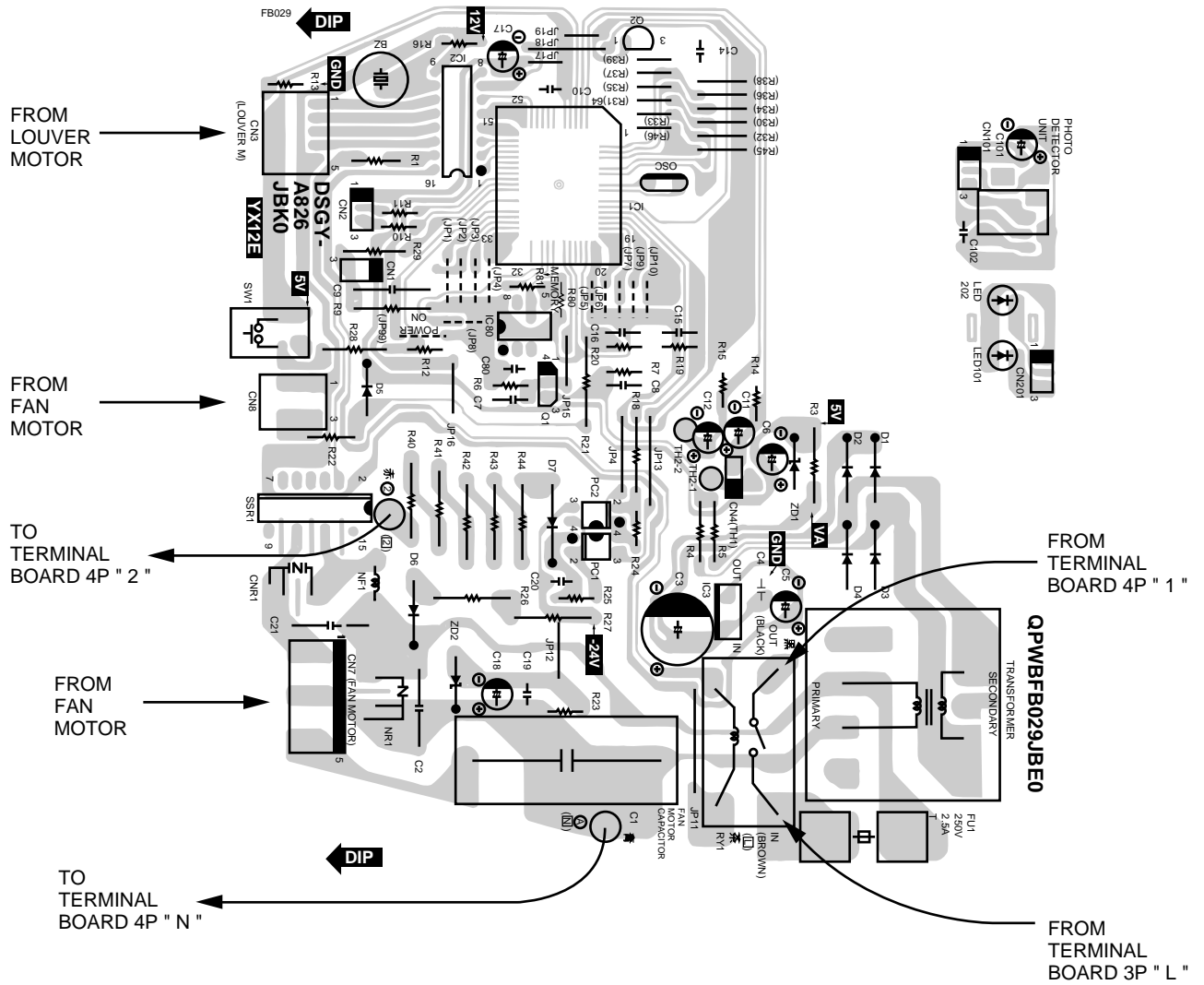


Figure L-6 Printed Wiring Board for AY-X127E



FUNCTIONS

AH-X127E is not provided with the heating function.

1. INDOOR UNIT

1-1 Temperature Adjustment

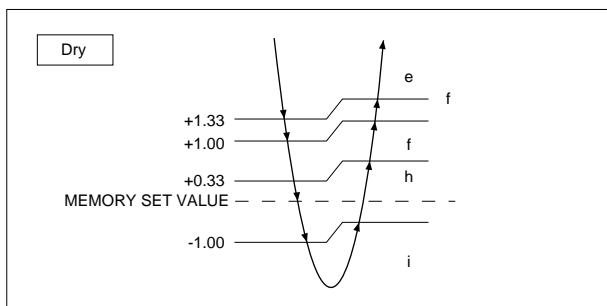
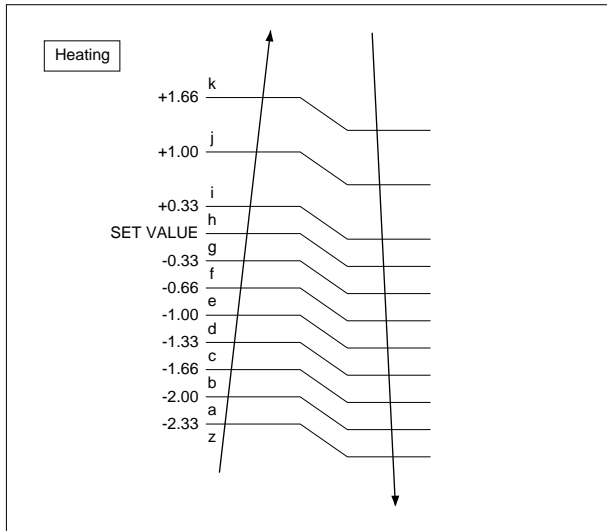
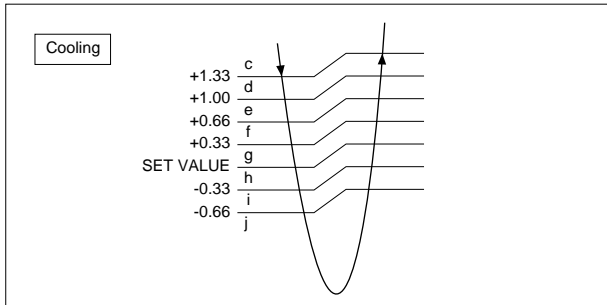
a. Normal control

Proportional control (P control)

When the temperature zone changes, this control changes the frequency by one rank to move closer to the set value.

Integral control (I control)

When the temperature zone has set time in the same zone, this control changes the frequency by one rank to move closer to the set value. (Excluding the h zone.)



b. Initial control

The initial frequency is determined as shown in the tables below based on the difference between the temperature adjustment setting at the beginning of operation and the room temperature.

After operation begins, normal control is performed and therefore the correspondences in the tables below will not hold.

Cooling	
Room temp. zone	Frequency Code
c	9
d	8
e	7
f	5
g	3
h	2
i	1
j	OFF

Dry	
Room temp. zone	Frequency Code
e	4
f	3
g	2
h	1
i	OFF

Heating	
Room temp. zone	Frequency Code
k	OFF (Hot keep fan)
j	1
i	1
h	2
g	3
f	4
e	5
d	6
c	8
b	A
a	B
z	C

c. Temperature adjustment

The temperature adjustment range is changed by changing the operating mode with the operation switch.

(1) Heating

If the room temperature is in the z zone when operation begins, proportional/integral control is not performed, and the machine runs at frequency code c full power until the h zone is reached. When the h zone is reached, the frequency changes to the frequency code determined by fuzzy calculation, and after that proportional/integral control is performed.

(2) Cooling

If the room temperature is in the c zone when operation begins, proportional/integral control is not performed, and the machine runs at frequency code 9 power until the h zone is reached. When the h zone is reached, the frequency changes to the frequency code determined by fuzzy calculation, and after that proportional/integral control is performed.

(3) Dry

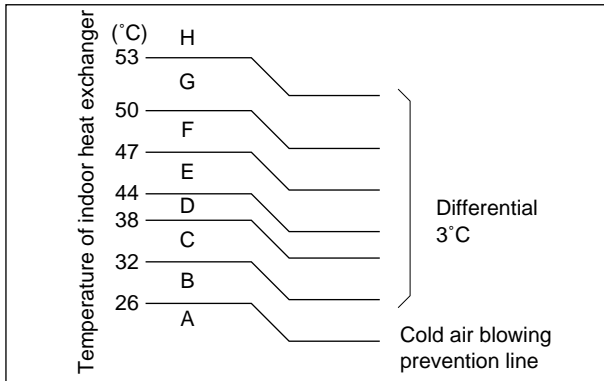
After operation begins, 2 minutes (running at the h zone) of the room temperature is stored in memory, and that becomes the set value.

(4) Circulation

The frequency code 0 is sent to the outdoor machine, and only the fan of the indoor machine runs, the compressor does not run.

1-2 Indoor fan control

This control uses the thermistor for the indoor heat exchanger to control cold air blowing prevention, the indoor fan, and overheating prevention.



(1) Control for indoor overheating prevention

If the temperature of the indoor heat exchanger exceeds the overheating prevention line during heating due to the operating frequency or the nature of the operation, this control lowers the frequency by 4 to 15 Hz. When the temperature goes below the overheating prevention line sixty seconds later, normal operation is restored.

Operating frequency	Overheating prevention line (°C)			
	Over 50 Hz	50 to 43 Hz	43 to 37 Hz	Below 37 Hz
During normal operation	54	53	52	51
During full power operation	57	56	55	54

(2) Control for indoor freezing prevention

If the temperature of the indoor heat exchanger stays below approximately 0°C for four minutes during cooling or dry, this control stops the compressor. Over 2°C the compressor will run again.

(3) Control for cold air blowing prevention

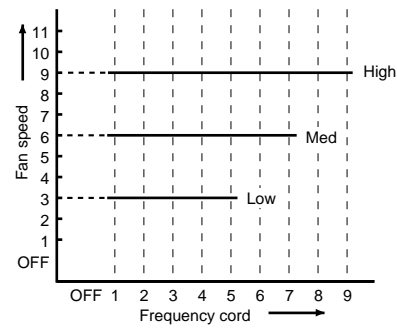
When heating begins, this control stops the indoor fan until the temperature of the indoor heat exchanger reaches 26°C. It also stops the fan if the temperature goes below 23°C during operation.

(4) Indoor fan and operating frequency

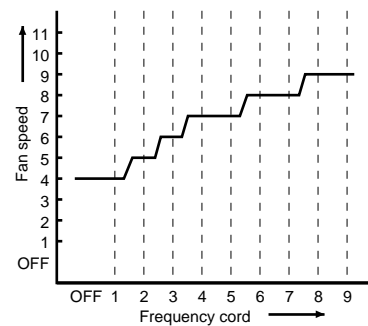
The indoor fan has 12 speeds, and changing is done in four stages, "Auto", "High", "Med", and "Low". The relations between the indoor fan speed, air quantity setting, operating frequency, and indoor heat exchanger are shown in the following charts.

COOLING

Fan speed : High / Med / Low

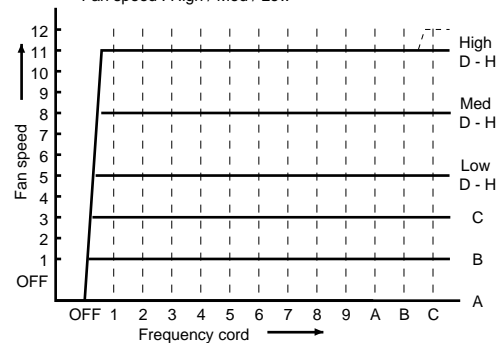


Fan speed : Automatic

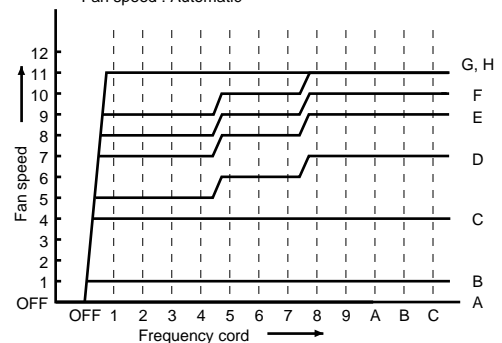


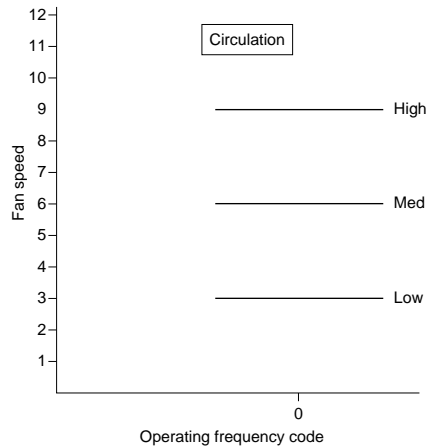
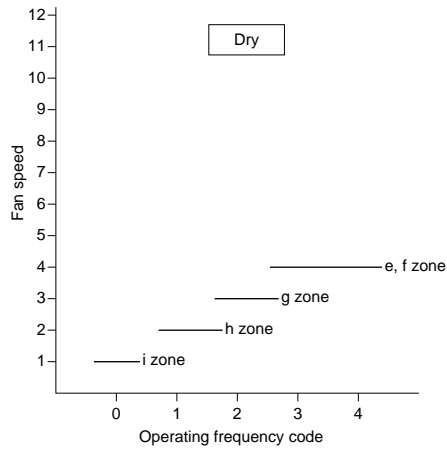
HEATING

Fan speed : High / Med / Low



Fan speed : Automatic





1-3 Hot keep

If the room temperature is in the j or k zone during heating, the compressor is turned on and off to prevent overheating.

Zone	Compressor intermittent time	Fan
J	3 min. on - 3 min. off	Same as Compressor
K	3 min. on - 8 min. off	After "3 min. on - 3 min.off" is repeated 4 times, the compressor goes off, and only the fan continues to repeat "3 min. on - 8 min.off".

The fan goes off 30 seconds after the compressor goes off.

1-4 Automatic operation

The operating mode and temperature setting are determined by the room temperature and the external air temperature.

	0	10	18	31	34	※ External air temperature (°C)
26	Heating (24°C)	Heating (23°C)	Heating (22°C)	Cooling (25°C)	Cooling (26°C)	Cooling (27°C)
21				Dry (Room temperature - 2°C)		
Room temperature (°C)						

※ The external air temperature is determined by detecting the temperature of the outdoor heat exchanger.

1-5 ON-timer

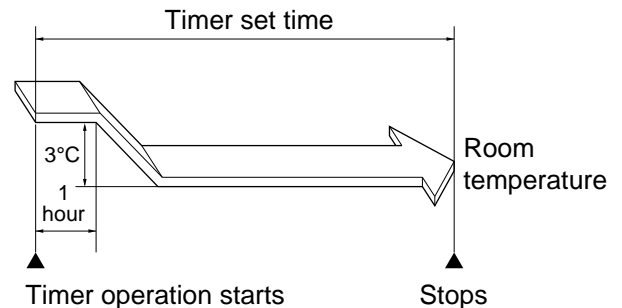
The ON-timer is set by pressing the ON-timer button. In order to attain the set temperature at the set time, the operation starting time is corrected by neuro and fuzzy computing one hour before the set time.

1-6 OFF-timer

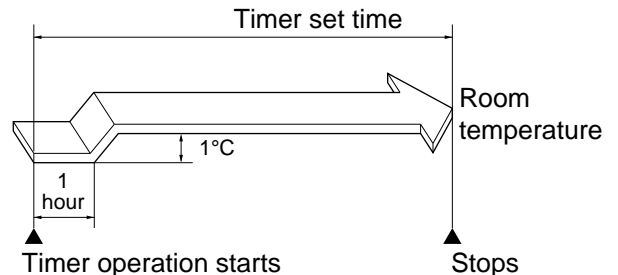
The OFF-timer is set by pressing the OFF-timer button. Operation is as follows:

	Set temperature
Cooling Heating	By fuzzy computing Set the shift up time Final (Cooling setting + 1°C) (Heating setting - 3°C)
Dry	Same as above (Final setting + 1°C)

*During Heating



*During Cooling / Dry



1-7 Swing louvre

The louvre is moved by a stepping motor to perform swing and fixing in the set position. If the "FLOW DIRECTION" button is pressed during swing, it will stop. If the "FLOW DIRECTION" button is pressed while it is stopped, it will swing.

1-8 Restart control

Once the compressor stops, this control prevents it from starting again for 3 minutes. It also prevents starting for 80 seconds immediately following plugging into the power outlet.

1-9 One-hour operation

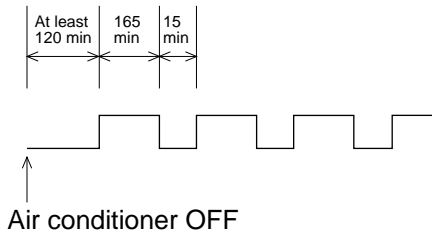
If this button is pressed when operation is stopped, operation will begin and then stop after 1 hour.
If pressed when it is operating, will stop after one hour.

1-10 Full power operation

Immediately begins cooling or heating at maximum power and air flow. Full power stops after 1 hour.
(During heating)
Operates at setting of 32°C.
(During cooling)
Operates at setting of 18°C.

1-11 Preheat

When heating is stopped, supplies a small amount of power to the compressor to make heating start more quickly.
Operates when the indoor temperature sensor and external air sensor detect that the room temperature and outdoor heat exchange temperature are low (below 18°C and 10°C, respectively). Stops when the compressor chamber temperature rises above 30°C.
Preheat does not operate for 2 hours after heating is stopped. After that, it goes on for 165 minutes and then stops for 15 minutes, repeatedly.

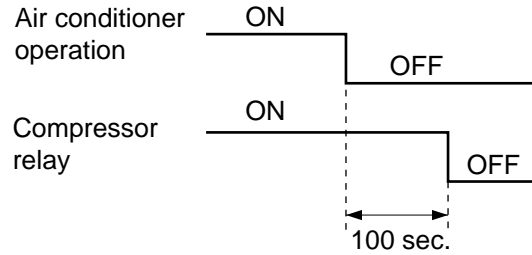


1-12 Power ON start

If a jumper wire is inserted into the place indicated **power ON** on the indoor control board, and the power plug is inserted. cooling or heating will be automatically determined by the room temperature sensor on the main unit, and operation will begin.

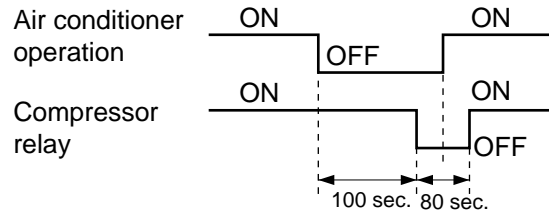
1-13 Compressor relay RY1

- (1) It is ON during operation, and when operation is stopped, goes OFF after a delay of 100 seconds (not immediately).
- (2) The minimum OFF time of the relay is 80 seconds.

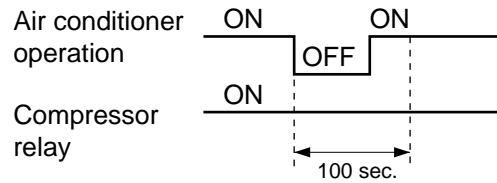


It will not go ON again before 80 seconds elapses.

- (3) If air conditioner operation is turned on again during



the 100 seconds delay before the compressor relay goes off, the compressor relay will stay on.



AU-X127E is not provided with the heating function.

2. OUTDOOR UNIT

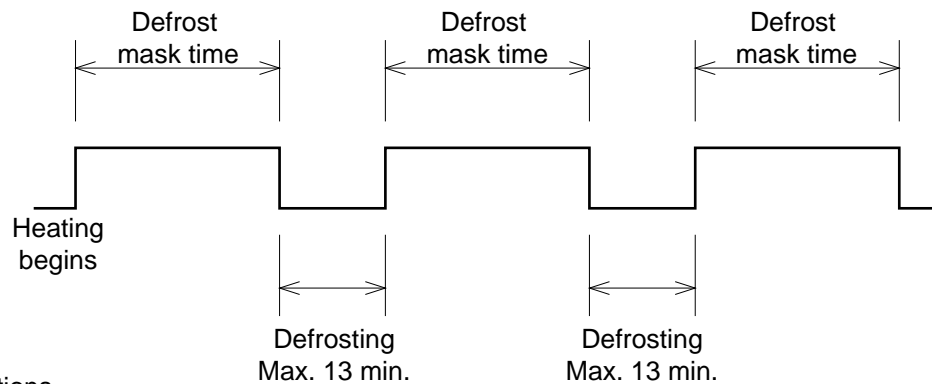
2-1 Defrost operation

(1) Overview

Defrosting begins during heating if the conditions for compressor operation time and the defrosting zone are met.

When defrosting begins, the indoor and outdoor fans stop.

Defrosting stops when the temperature of the outdoor heat exchanger goes above approximately 10°C or defrosting time exceeds 13 minutes.



(2) Defrosting conditions

The temperature of the outdoor heat exchanger and the temperature of the outdoor are detected by 2 sensors, and if it stays in the preset defrost zone for approximately 40 seconds, defrosting start is enabled.

If defrosting is enabled when the defrost mask time ends, defrosting is performed. If defrosting is not enabled, the machine waits until defrosting is enabled.

Defrost mask times is 20 minutes.

The defrosting zone is decided by outdoor temperature and outdoor heat exchanger temperature.

(3) During defrosting

When defrosting begins, the compressor stops. Approximately 1 minutes later, the compressor reactivates in the refrigeration cycle, and the outdoor heat exchanger is defrosted.

Each mode is as follows:

The outdoor fan is stopped

The operating frequency is 115Hz

The indoor fan is stopped

(4) Defrost stop

When defrosting time exceeds 13 minutes

When the temperature of the outdoor heat exchanger rises above approximately 10°C

Defrost stop is determined by either of the above conditions, and the compressor is stopped.

At the same time, the outdoor fan go ON. The compressor is reactivated in the heating cycle 1 minutes after it was stopped, and normal control resumes.

2-2 Frequency control

(1) AC current peak control

This control lowers the compressor frequency if the AC current exceeds the set values. If the current is below the set values, the compressor frequency will not be raised above that frequency, as the maximum frequency, for 1 minute.

Model	Set value	
AE-X127E	During heating	Approximately 11.3 A
AE-X127E, AU-X127E	During cooling	Approximately 10.4 A

(2) Control for prevention of indoor heat exchanger overheating

If the temperature of the indoor heat exchanger exceeds the overheating prevention line during heating due to the operating frequency or the nature of the operation, the frequency is lowered by approximately 5 to 10 Hz. After that, the frequency is lowered by approximately 5 to 10 Hz once every 60 seconds. When the temperature of the indoor heat exchanger goes below the overheating prevention line, the frequency is raised by approximately 5 Hz once every 60 seconds, and normal operation is restored.

If the frequency is lowered to minimum frequency without the temperature of the indoor heat exchanger decreasing and this condition lasts for 1 minute, the compressor will be stopped.

Operating frequency	Overheating prevention line			
	Above 50 Hz	50 to 43 Hz	43 to 37 Hz	Below 37 Hz
During normal operation	54	53	52	51
During full power operation	58	57	56	54

(3) Control for prevention of outdoor heat exchanger overheating

If the temperature of the outdoor heat exchanger exceeds approximately 57°C during cooling, the operating frequency is lowered by approximately 5 to 15 Hz. After that, the frequency is lowered by approximately 5 to 10 Hz once every 120 seconds. When the temperature of the outdoor heat exchanger goes below approximately 55°C, the frequency is raised by approximately 5 Hz once every 60 seconds, and normal operation is restored.

If the frequency is lowered to minimum frequency without the temperature of the outdoor heat exchanger decreasing and this condition lasts for 1 minute, the compressor will be stopped.

(4) Control for prevention of discharge overheating

If the discharge temperature exceeds approximately 105 ~ 107°C during compressor operation, the operating frequency is lowered by approximately 5 Hz. After that, the frequency is lowered by approximately 5 Hz once every 60 seconds. When the temperature of the outdoor heat exchanger goes below approximately 104 ~ 106°C, the frequency is raised by approximately 5 Hz once every 60 seconds, and normal operation is restored.

If the frequency is lowered to minimum frequency without the discharge temperature decreasing and this condition lasts for 1 minute, the compressor will be stopped.

(5) Control for prevention of indoor heat exchanger freezing

If the temperature of the indoor heat exchanger goes below approximately 5°C during cooling, the operating frequency is lowered by approximately 5 Hz. After that, the frequency is lowered by approximately 5 Hz once every 60 seconds. When the temperature of the indoor heat exchanger rises above approximately 5°C, the frequency is raised by approximately 5 Hz once every 60 seconds, and normal operation is restored.

If the temperature of the indoor heat exchanger goes down to approximately 0°C and this condition continues for 4 minutes, the compressor is stopped. When the temperature rises above approximately 2°C, normal operation is restored.

2-3 Overcurrent protection

(1) Compressor lock detection

If the set value (4.25 A) of AC current is exceeded at 17 to 30 Hz when operation begins, operation is stopped. In this case, the compressor outdoor fan does not stop, and 170 seconds after operation is stopped, another try will be made. Three retries are allowed. On the fourth retry, a complete stop request signal is sent to the indoor unit, and the outdoor unit will remain stopped until reset is performed. At this time, the 3-minute delay for control of the outdoor unit will not function; therefore, do not cancel by removing the plug and cutting the power.

(2) DC overcurrent detection, AC overcurrent detection

To protect against overcurrent due to sudden changes in load, the compressor is stopped if the set value 30 A DC is exceeded in the DC section, or the set value 15 A AC is exceeded in the AC section. In this case, the outdoor fan does not stop, and 170 seconds after operation is stopped, another try will be made. Three retries are allowed. On the fourth retry, a complete stop request signal is sent to the indoor unit, and the outdoor unit will remain stopped until reset is performed. At this time, the 3-minute delay for control of the outdoor unit will not function; therefore, do not cancel by removing the plug and cutting the power.

2-4 Compressor protector control

If the temperature of the compressor chamber exceeds 114°C, the compressor is stopped. In this case, the outdoor fan does not stop, and when the compressor chamber temperature decreases to 100°C three minutes after operation is stopped, another try will be made. Three retries are allowed. On the fourth retry, a complete stop request signal is sent to the indoor unit, and the outdoor unit will remain stopped until reset is performed. At this time, the 3-minute delay for control of the outdoor unit will not function; therefore, do not cancel by removing the plug and cutting the power.

2-5 Power transistor module protector

If the temperature of the chips in the power transistor module exceeds 105 °C, the compressor is stopped. In this case, the outdoor fan does not stop, and when the temperature of the chips in the power transistor module decreases to 105 °C 170 seconds after operation is stopped, another try will be made. Three retries are allowed. On the fourth retry, a complete stop request signal is sent to the indoor unit, and the outdoor unit will remain stopped until reset is performed. At this time, the 3-minute delay for control of the outdoor unit will not function; therefore, do not cancel by removing the plug and cutting the power.

2-6 Serial signals

(1) Serial signals consist of all 96-bit signals.

(2) If the outdoor unit does not receive a serial signal, it will stop approximately 30 seconds later. Note that this is true only of normal operation; in test mode, it does not stop and operation takes place based on the test mode commands.

FUNCTION AND OPERATION OF PROTECTIVE PROCEDURES

NO	Function	Operation				Self diagnostic display	
		Description	Detection time	Restart condition	Restart times	Indoor	Outdoor
1	Indoor fan lock	Stops operation if no revolution pulse signal is input from the indoor fan motor for one minute.	When indoor fan is revolving	Operation OFF	No limit	Yes	No
	Indoor fan rpm error	Stops operation if the revolution pulse signal from the indoor fan indicates low rpm (approximately 300 rpm or less).					
2	Indoor freezing guard	Lowest the operating frequency if the temperature of the indoor heat exchanger goes below 5°C during cooling. Stops the compressor if the temperature stays below 0°C for 4 minutes.	During cooling and dry	Automatically restarts when the exchange temperature rises above the freezing prevention temperature (above 2°C)	No limit	No	No
3	Indoor overheating control	<p>Lowest the operating frequency if the temperature of the indoor heat exchanger rises above the overheating temperature during heating. Stops the compressor if the temperature stays above the overheating temperature for 1 minute at minimum frequency.</p> <p>Set values for overheating temperature</p> <p>During normal operation: 51°C to 54°C</p> <p>During full power operation: 54°C to 58°C</p>	During heating	Automatically restarts when the exchange temperature goes below the overheating temperature.	No limit	No	No
4	DC overcurrent or overheat of the IPM	Stops the compressor if a current of approximately 30 A or more flows in the power transistor module. Also stops the compressor if the temperature of the power transistor module exceeds 105°C.	During compressor operation	Automatically restarts after safety time (170 seconds)	4 times	Yes	Yes
5	AC overcurrent	<p>Lowest the operating frequency if the compressor AC current exceeds Peak control level [11.3A(heating), 10.4A(cooling)]</p> <p>Stops the compressor if the current exceeds peak control level at 40 Hz or less.</p> <p>Stops the compressor if the compressor AC current exceeds 15 A.</p>	During compressor operation	Automatically restarts after safety time (170 seconds)	4 times	Yes	Yes
6	Compressor lock	Stops the compressor if the compressor AC current exceeds 4.25 A immediately after activating the compressor (at 17 to 30 Hz).	Immediately after compressor activation.	Automatically restarts after safety time (170 seconds)	4 times	Yes	Yes

NO	Function	Operation				Self diagnostic display	
		Description	Detection time	Restart condition	Restart times	Indoor	Outdoor
7	Compressor overheating control	Lowens the operating frequency if the temperature of the compressor chamber thermistor (TH1) rises above 105 ~107°C. Stops the compressor if the thermistor stays above 104 ~ 106°C for 4 minutes, or 1 minute at minimum frequency or less.	During compressor operation	Automatically restarts after safety time (170 seconds)	No limit	No	No
8	Compressor high temperature error	Stops the compressor if the compressor chamber thermistor is above 114°C. (Or when TH1 shorts)	During operation	Automatically restarts when thermistor (TH1) temperature falls below 100°C (approximately 30 minutes)	4 times	Yes	Yes
9	Outdoor overheating control	Lowens the operating frequency if the temperature of the outdoor heat exchanger rises above 57°C during cooling. Stops the compressor if the temperature stays above 57°C for 4 minutes, or 1 minute at minimum frequency or less.	During compressor operation	Automatically restarts after safety time (170 seconds)	No limit	No	No
10	Outdoor thermistor short	Stops the compressor if an outdoor thermistor (excluding TH1) shorts. (Except for the AU-X127E)	When compressor is activated	Automatically restarts after safety time (170 seconds)	4 times	Yes	Yes
11	Outdoor thermistor open	Stops the compressor if the circuit of an outdoor thermistor breaks. (Except for the AU-X127E)	When compressor is activated	Automatically restarts after safety time (170 seconds)	4 times	Yes	Yes
12	AC abnormal current error	Stops the compressor if the operating frequency is above 70 Hz and the compressor current is below 1.0 A.	During compressor operation	Automatically restarts after safety time (170 seconds)	4 times	Yes	Yes
13	Serial signal error	Turns the compressor relay off if the indoor unit does not receive a serial signal from the outdoor unit for 8 minutes.	During operation	Automatically restarts less than 8 minutes after operation stops	No limit	Yes	—
		Stops the compressor if the outdoor unit does not receive a serial signal from the indoor unit for 30 seconds.	During operation	Restarts after reception of serial signal	No limit	—	Yes

AH-X127E
AU-X127E
AY-X127E
AE-X127E

REFRIGERANT CYCLE

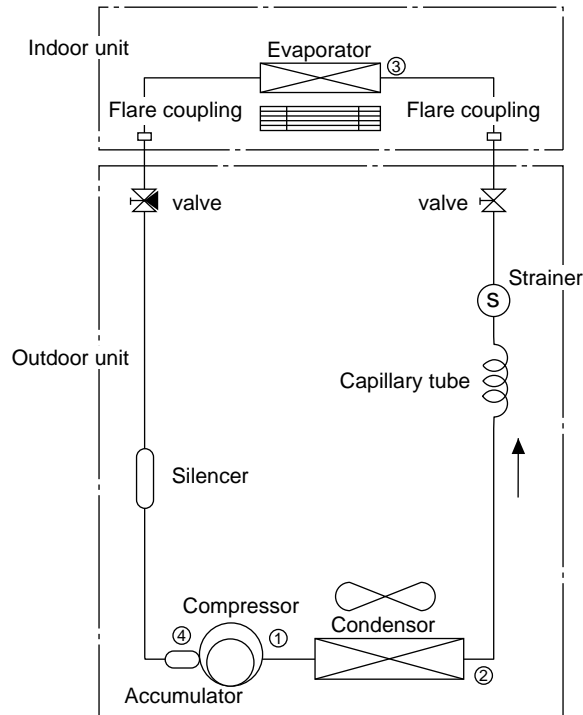


Figure R-1. Refrigeration Cycle for AH-X127E

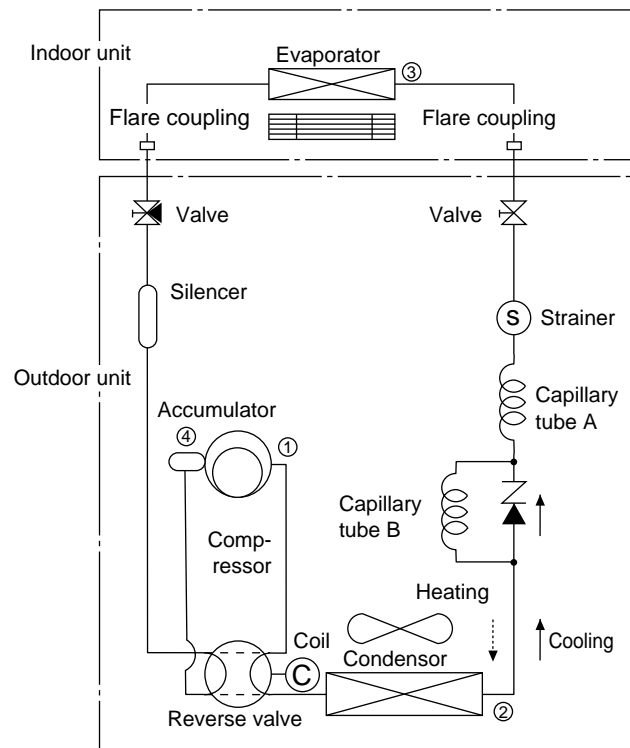


Figure R-2. Refrigeration Cycle for AY-X127E

Standard conditions:

AH-X127E

	Indoor side		Outdoor side	
	Dry-bulb Temp. (°C)	Relative Humidity (%)	Dry-bulb Temp. (°C)	Relative Humidity (%)
Cooling	27	47	35	40

Temperature at each part and pressure in 3-way valve

AH-X127E

Operation mode	Cool (Max.)	Cool
No. / Hz	111	50 settle
①	107°C	67°C
②	48°C	44°C
③	12°C	14°C
④	8°C	11°C
3-way valve pressure (kg/cm ² G)	4.3	6.0

Dimension of Capillary tube

AH-X127E

	O.D	I.D.	L
Capillary tube	ø3.2	ø1.8	900

Standard conditions:

AY-X127E

	Indoor side		Outdoor side	
	Dry-bulb Temp. (°C)	Relative Humidity (%)	Dry-bulb Temp. (°C)	Relative Humidity (%)
Cooling	27	47	35	40
Heating	20	—	7	87

Temperature at each part and pressure in 3-way valve

AY-X127E

Operation mode	Cool (Max.)	Heat (Max.)	Cool	Heat
No. / Hz	111	more than 120	50 settle	50 settle
①	107°C	103°C	69°C	55°C
②	46°C	0°C	44°C	2°C
③	13°C	39°C	14°C	32°C
④	5°C	-1°C	12°C	2°C
3-way valve pressure (kg/cm ² G)	4.2	20.0	6.0	12.7

Dimension of Capillary tube

AY-X127E

	O.D	I.D.	L
Capillary tube A	ø3.2	ø1.8	1100
Capillary tube B	ø3.2	ø1.8	500

PERFORMANCE CURVES

NOTE: 1) Indoor fan speed: Hi
2) Vertical adjustment louver "45°", Horizontal adjustment louver "front"
3) Indoor air temp. : Colling 27°C

(Running frequency: 99HZ)

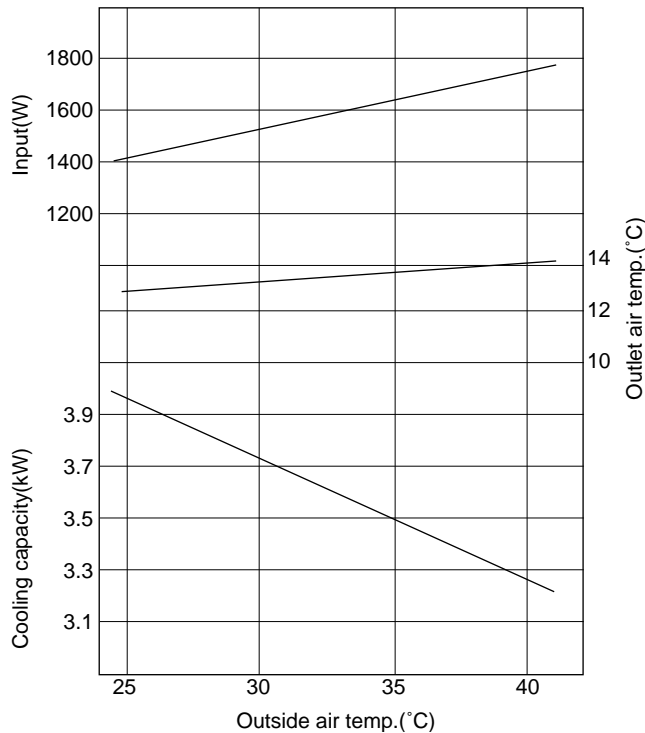


Figure P-1. At Cooling for AH-X127E

(Running frequency: 99Hz)

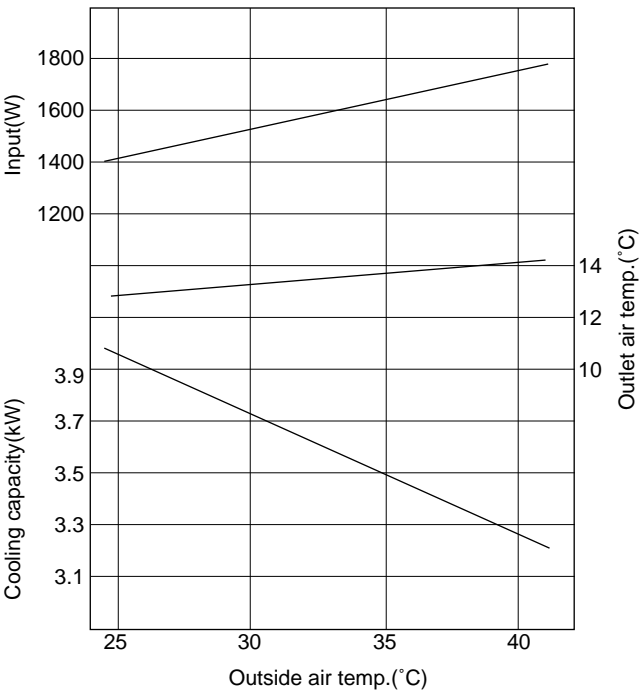


Figure P-2 At Cooling for AY-X127E

(Running frequency: 102Hz)

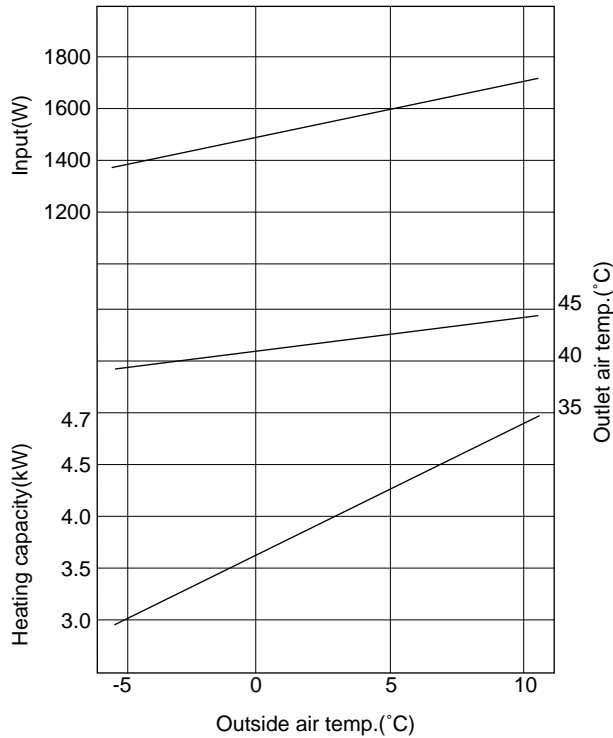


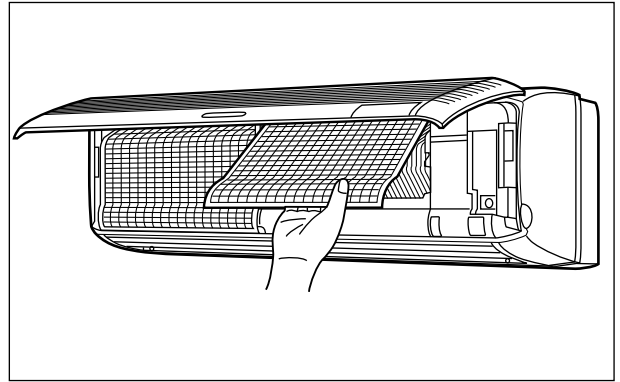
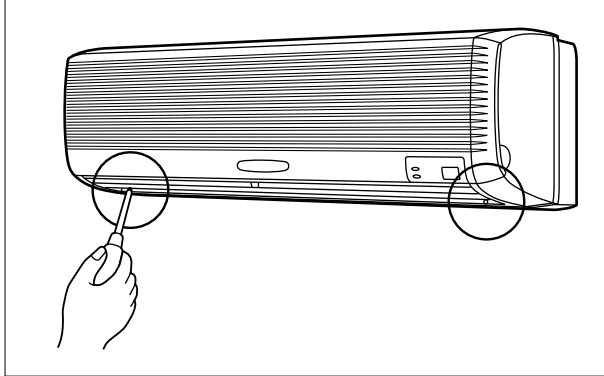
Figure P-3 At Heating for AY-X127E

DISASSEMBLING PROCEDURE

FOR INDOOR UNIT MODEL AH-X127E AND AY-X127E

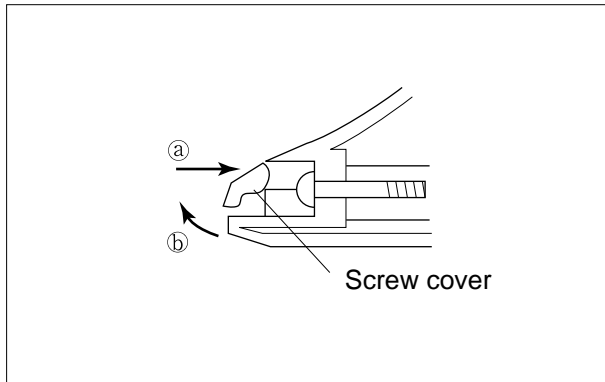
CAUTION: DISCONNECT THE UNIT FROM THE POWER SUPPLY BEFORE ANY SERVICING

- Using the narrow slotted screwdriver or similar, remove the screw cover from the front panel.
- Open the open panel, and remove the two air filters.



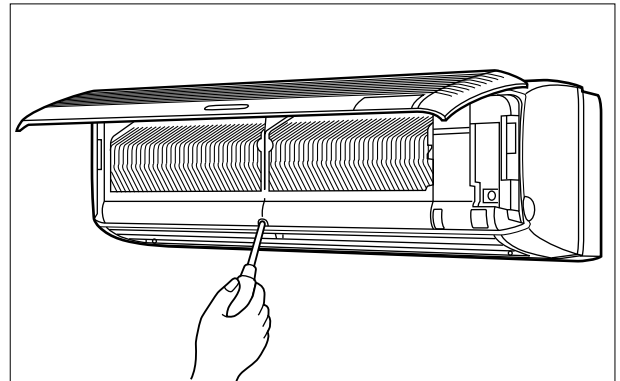
How to remove the screw cover

- Press the top of the screw cover with the flat-tipped screwdriver (or nail, etc).
- Insert the flat-tipped screwdriver (or nail, etc) into the lower clearance, and pull and lift it toward you for removal.

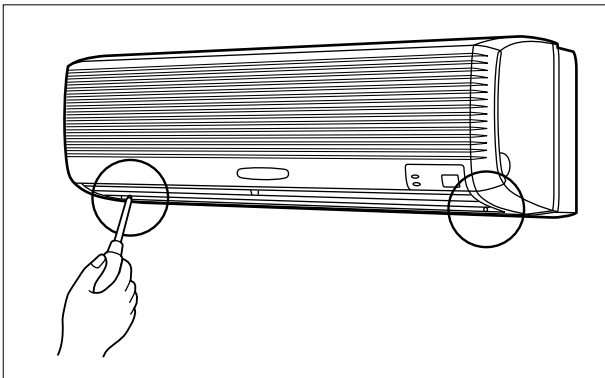


- Remove one inner screw.

Note: During reassembly, don't tighten the screw strongly, or it will become idle.

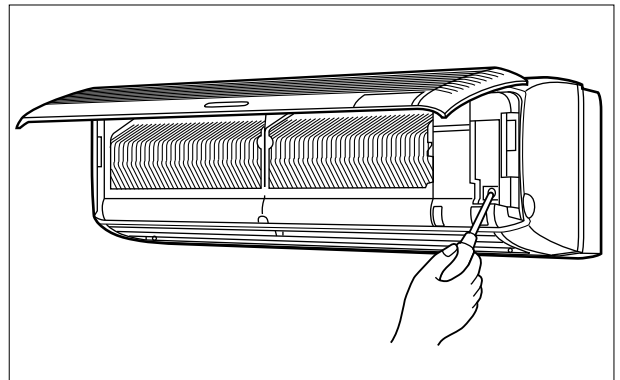


- Remove two screws from the front panel.



- Remove the fastening screw which retains the cable, and remove the cord.

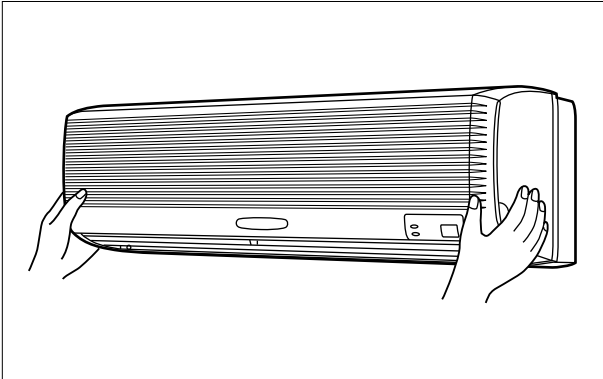
Note: During reassembly, install the holder after installing the front panel. This will make it easier to assemble the front panel.



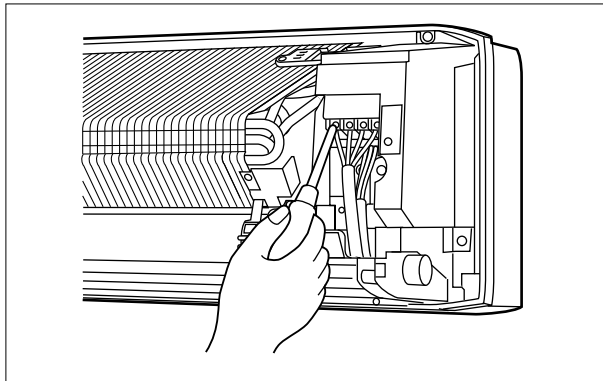
6. After closing the open panel, open the horizontal adjustment louver and pull out the bottom of the front panel toward you.

Lifting the front panel, strongly pull the top toward you. Making the front panel parallel to the main body, strongly pull it toward you for removal.

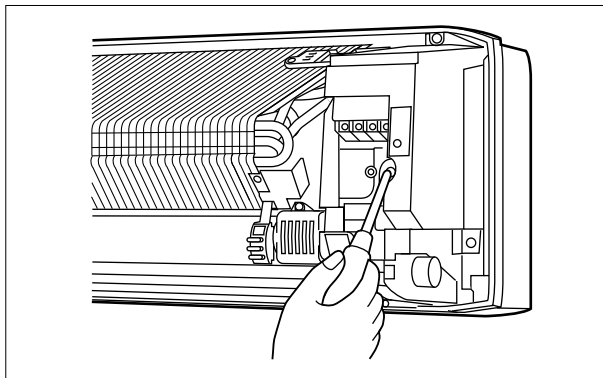
To install the front panel, place the bottom of the front panel under the open horizontal adjustment louver, and press in the front panel, parallel to the cabinet. When pressing it in, take care to prevent the top of the blow-out port of the drain pan from being caught by the front panel.



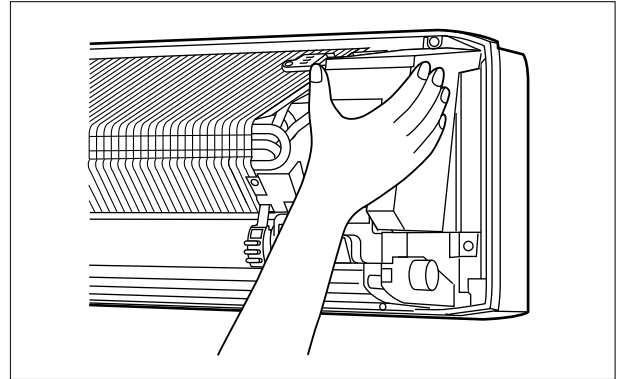
7. Remove the unit-to-unit wiring from the terminal board. (Loosen the screw with the screwdriver, and pull out the wiring.)



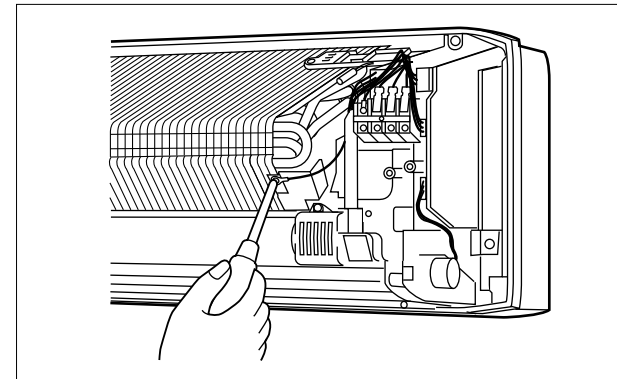
8. Remove one fastening screw from the control box cover.



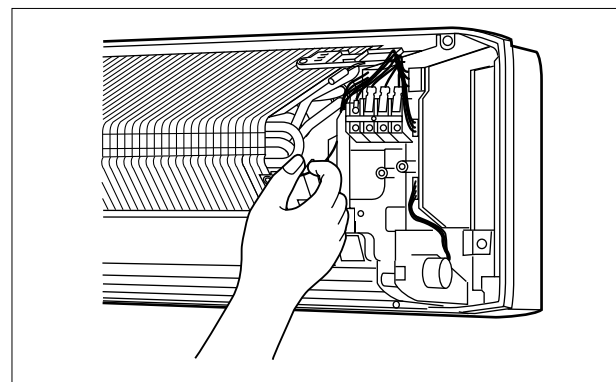
9. Remove the control box cover. Holding its bottom, pull and disengage the upper hook toward the bottom.



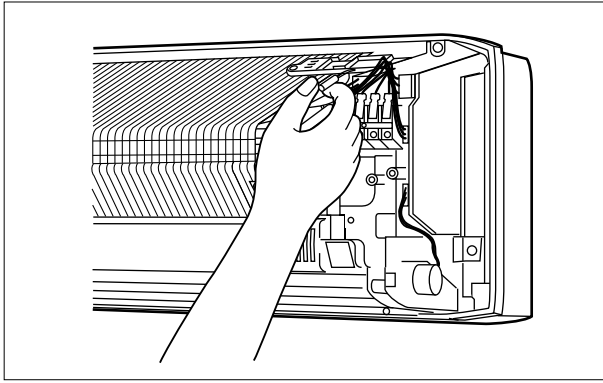
10. Remove the ground wire. (One screw)
Note: During reassembly, take care for the direction of the lead wire.



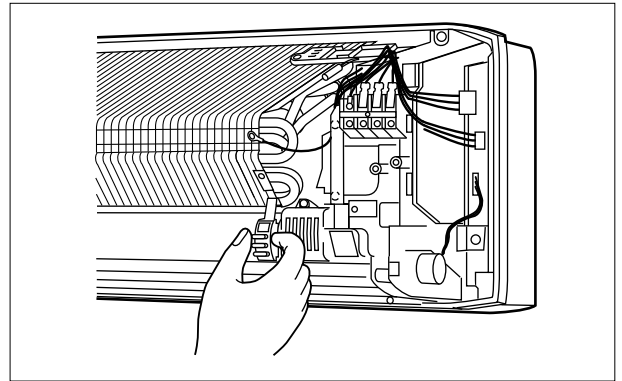
11. Remove the protect cover for the dew.
Note: During reassembly, verify that the dew on the pipe is recovered to the drain pan.



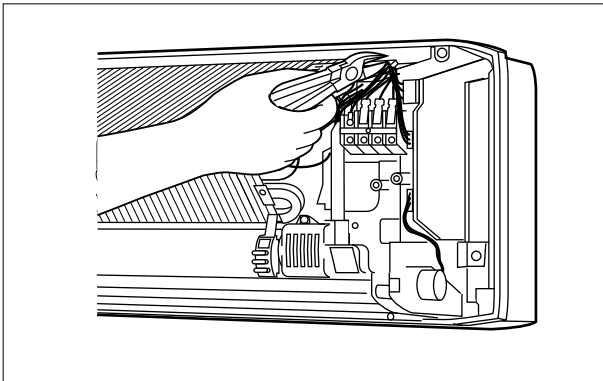
12. Remove the thermostat of the evaporator.
 (Pull it out after peeling off the thermoseal.)



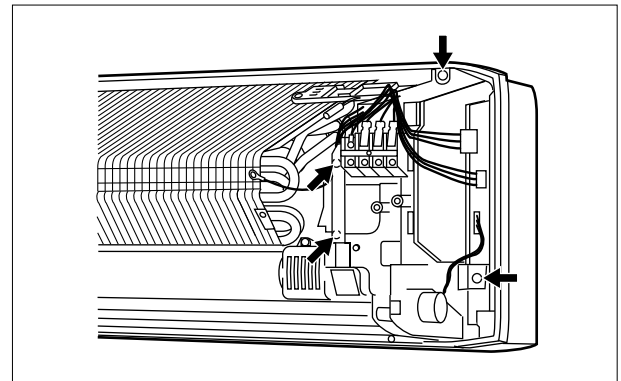
15. Remove the indicator assembly.
 (Push up the lower hook, and the indicator will be ready for removal.)



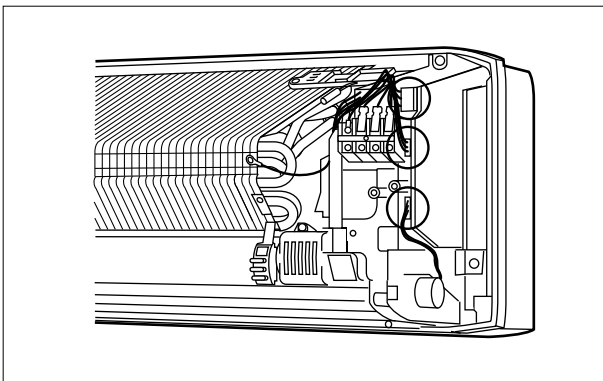
13. Cut the tie band of the lead wire.



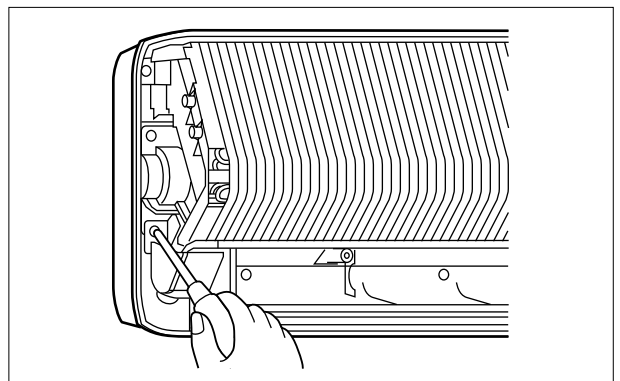
16. Remove four fastening screws of the control box, and remove the control box.



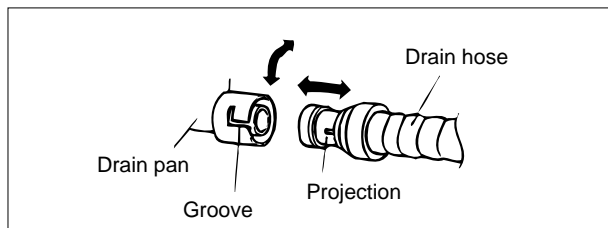
14. Remove two connectors of the fan motor and one of louver motor.



17. Remove the fastening screws of the drain pan. (One screw on the left side.)

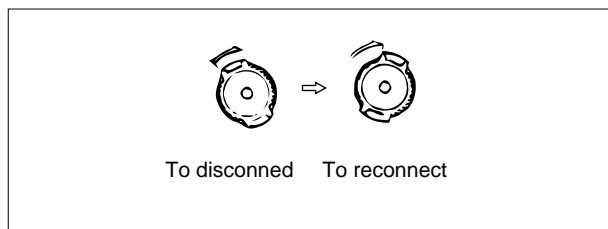


18. Turn the cap area of the drain hose counterclockwise, and remove it from the drain pan.

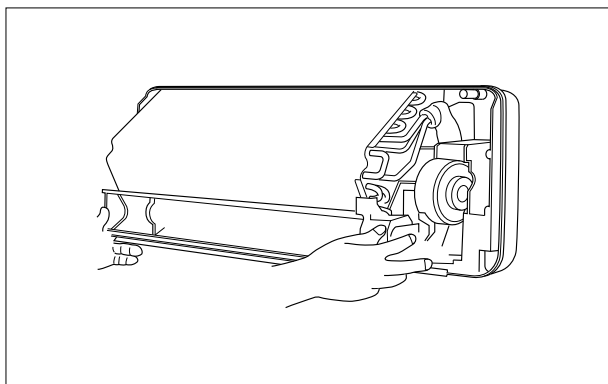


During installation, turn the drain hose to the state of the "engagement position".

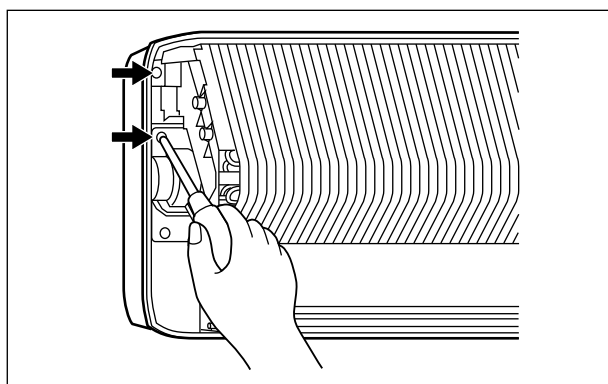
After reinstallation, verify that it is securely fastened.



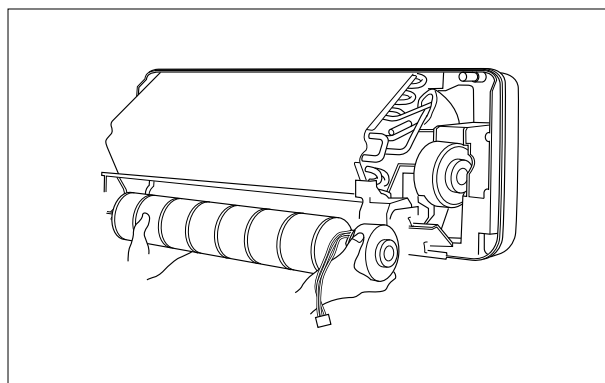
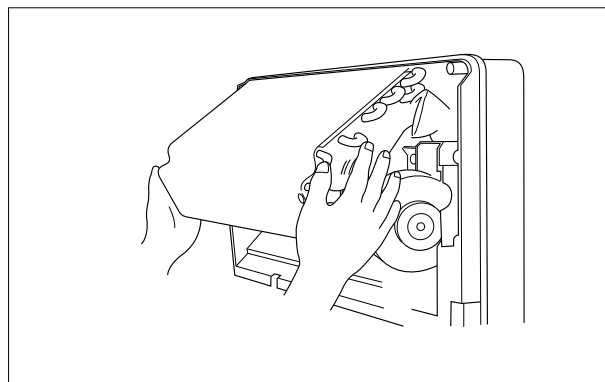
19. Pull down the drain pan toward you for removal.



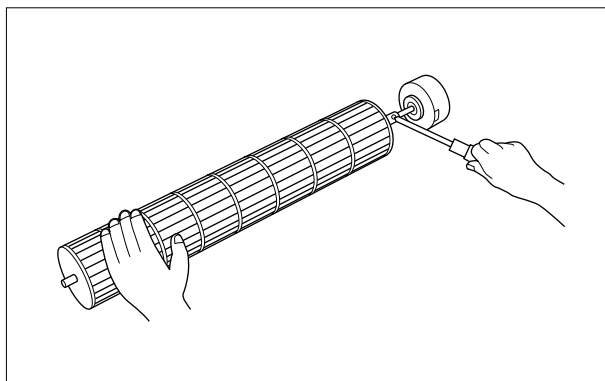
20. Remove two fastening screws of the side cover L.



21. Move the evaporator to the up, and release it from one projection of cabinet. Free the evaporator, and pull down the cross-flow fan and motor toward you. Remove them together. (If it is tried to remove the fan alone, it will damage the inner surface of the metal to prevent removing the fan.)

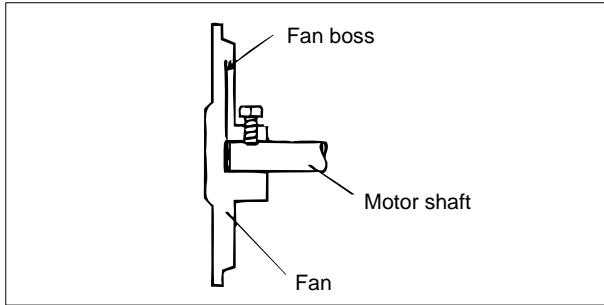


22. Loosen the fan fastening screw, and remove the fan.

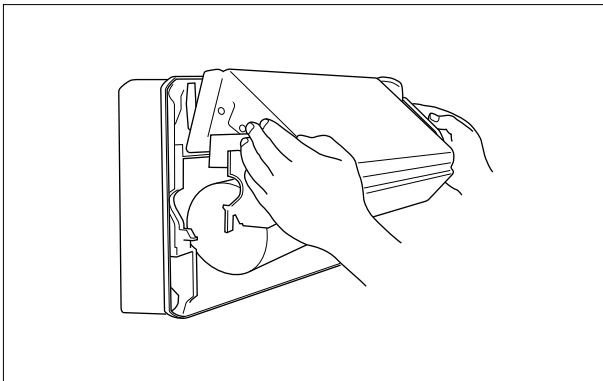
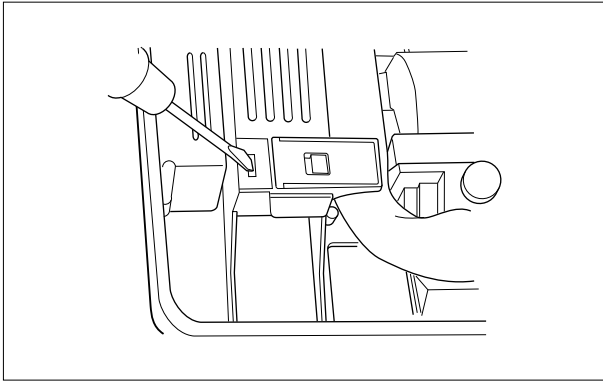


<Cautionary points for assembling the fan>

- When inserting the shaft of the cross-flow fan into the metal, take care to prevent injuring the inner surface of the metal.
- Before fastening the motor shaft and fan, insert the shaft into contact with the fan boss.

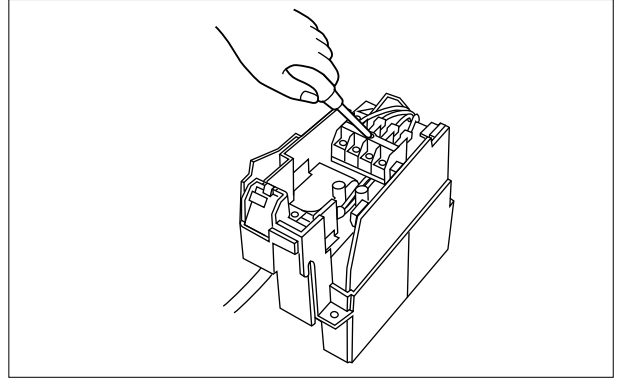


- To remove the evaporator, remove the tube holder on the rear side of the cabinet, pull the side cover L of left side with the side cover R of right side toward yourself and lift it up, and remove it from cabinet, pulling it toward you.

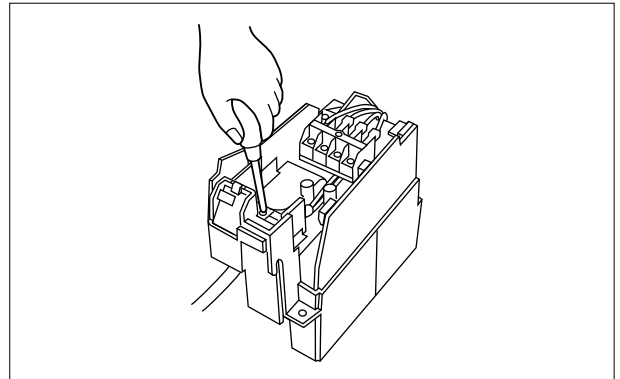


How to remove the electric control box.

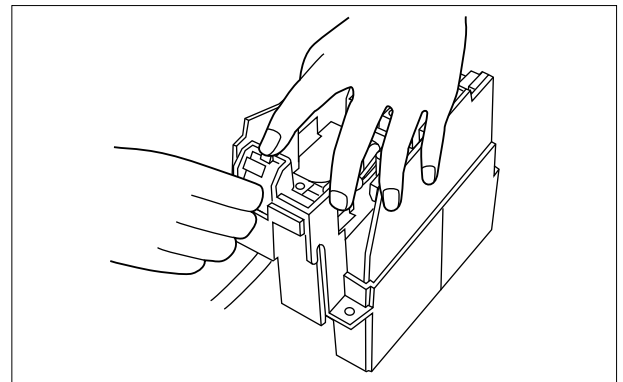
- Remove the fastening screw of the 4 poles terminal board.



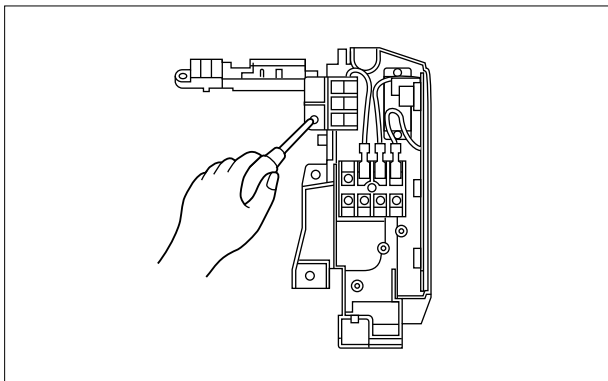
- Remove the cord holder fastening screw of the power supply cord.



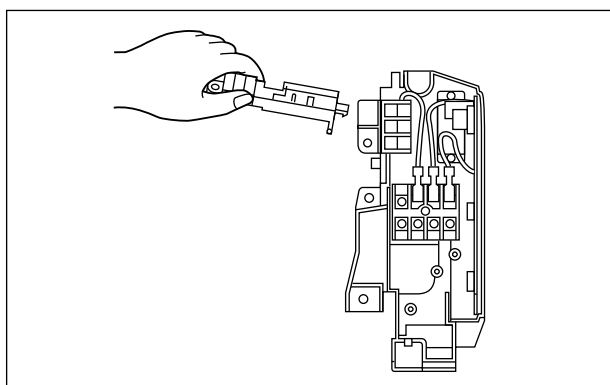
- Remove the receiver unit. (Press and spread the upper hook, and the receiver unit will be ready for removal.)



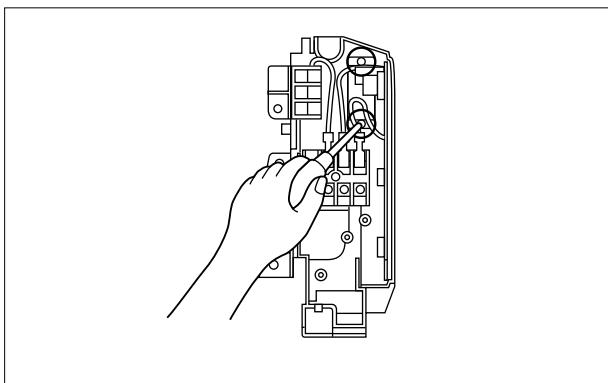
4. Remove the terminal board fastening screw of the terminal board holder.



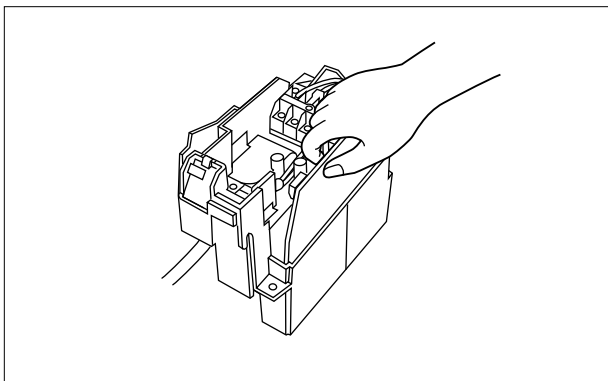
5. Remove the thermostat holder from the control box.



6. Remove the fastening screw of the board.



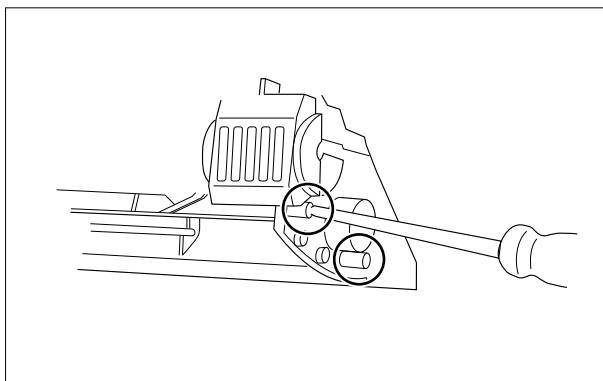
7. Pull out the board.



Drain pan and related

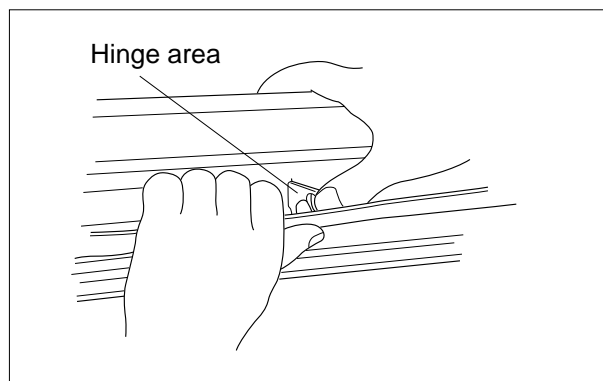
How to remove the louver motor.

Remove two screws which fasten the louver motor.



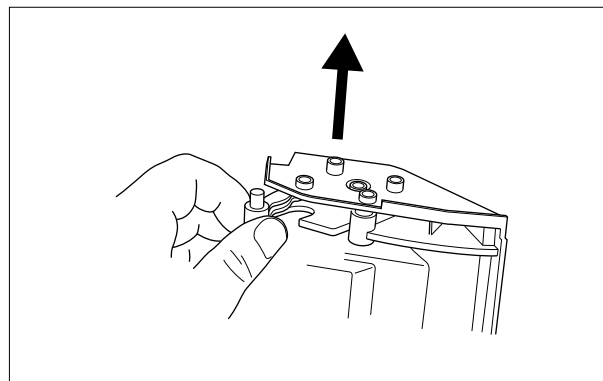
How to remove the horizontal adjustment louver

Slightly fall down the hinge area, deflect the louver, and remove it at one place. Remove the shaft from each of the left and right sides.



How to remove the side clamp assembly

Left the edge of the drain pan to the arrow-marked direction and ditach the side clamp assembly.

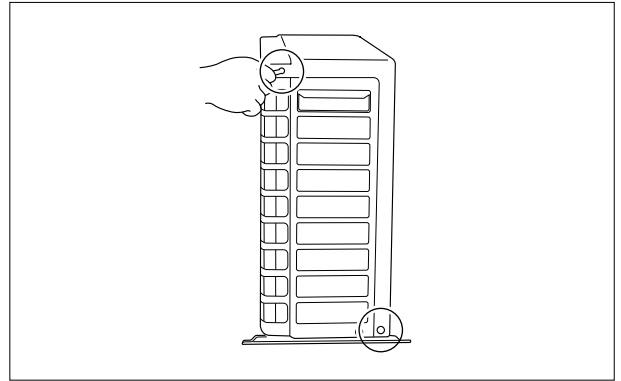
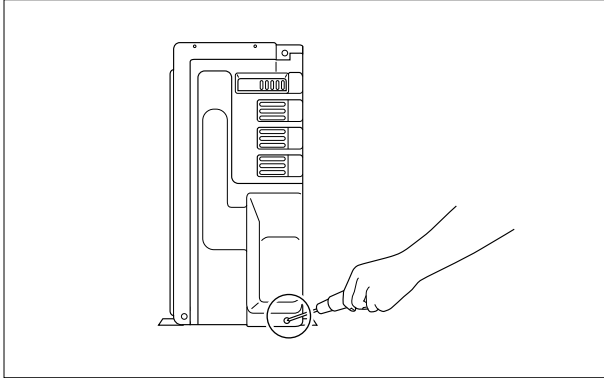


SERVICING PROCEDURE

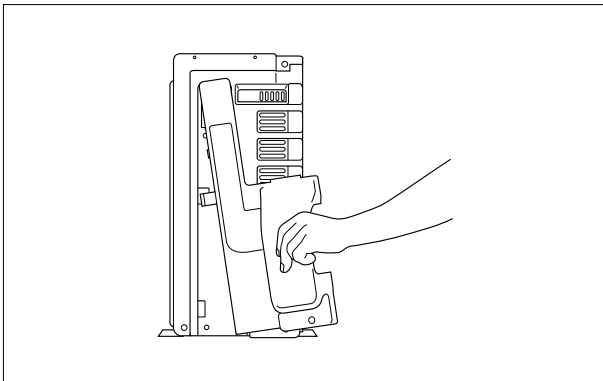
FOR OUTDOOR UNIT MODEL AU-X127E AND AE-X127E

CAUTION: DISCONNECT THE UNIT FROM THE POWER SUPPLY BEFORE ANY SERVICING

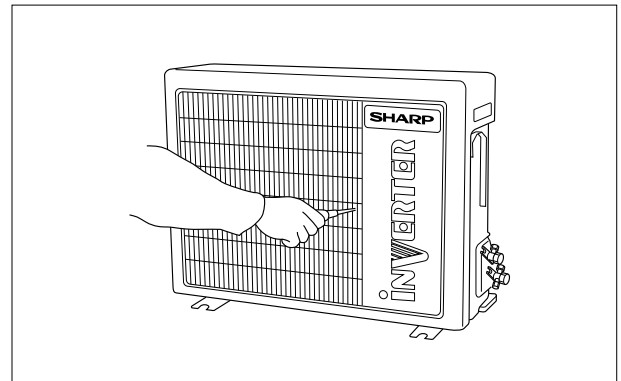
1. Remove one screw which is fixing the control box cover.
4. Remove two screws which are fixing left side of the front panel.



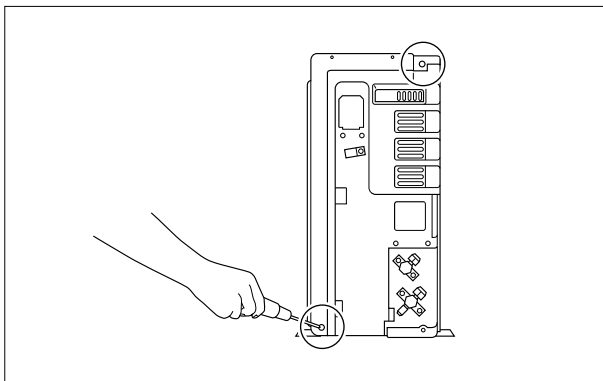
2. Remove the control box cover.



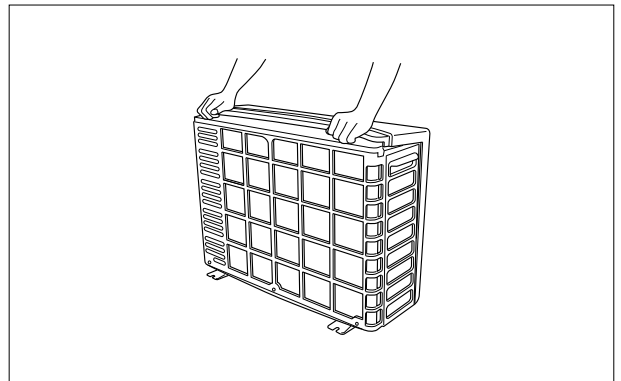
5. Remove one screw which is fixing front part of the front panel.
(BLACK COLOR)



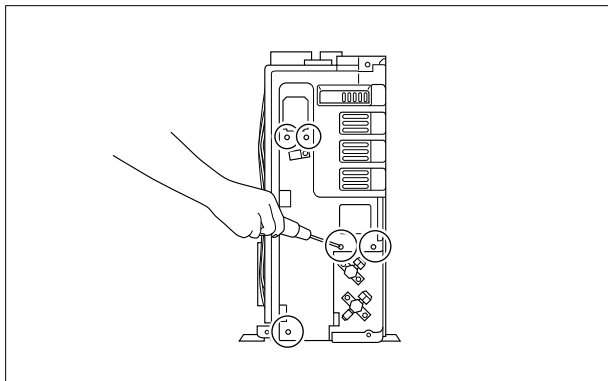
3. Remove two screws which are fixing right side of the front panel.
And disconnect the wiring from the terminal board.



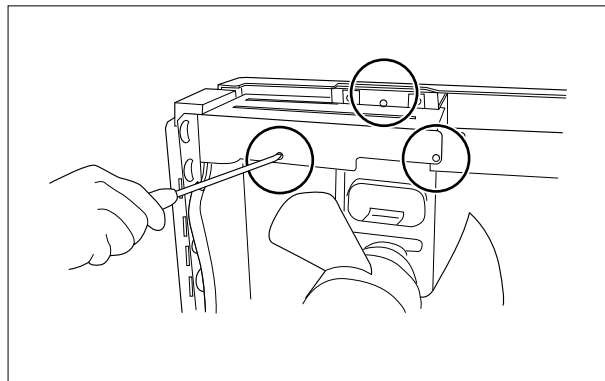
6. Take off the three hooks of back side of the front panel.
And pull it toward you.



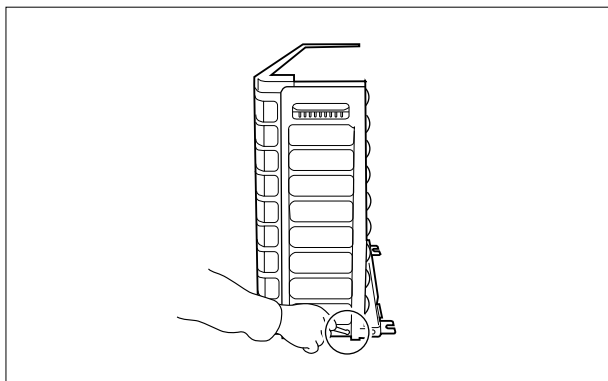
7. Remove five screws which are fixing right side of the rear cabinet.



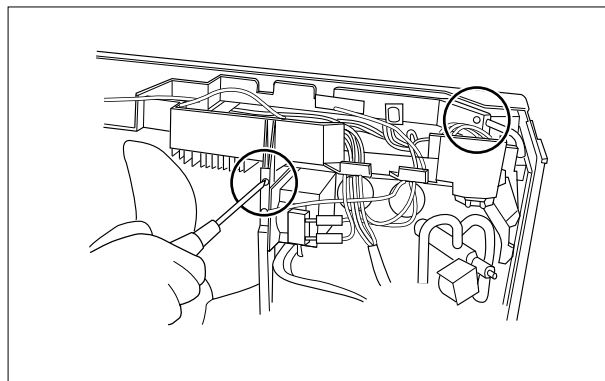
10. Remove three screws which are fixing condenser box cover.



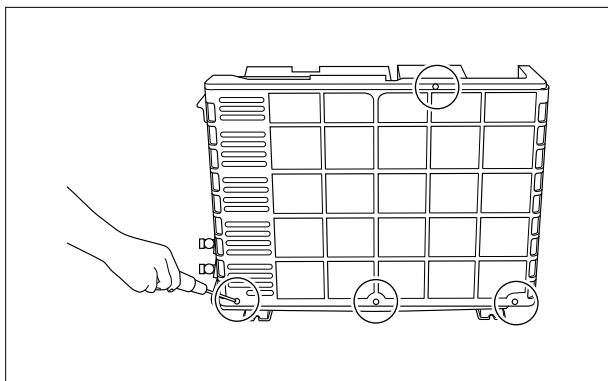
8. Remove one screw which is fixing left side of the rear cabinet.



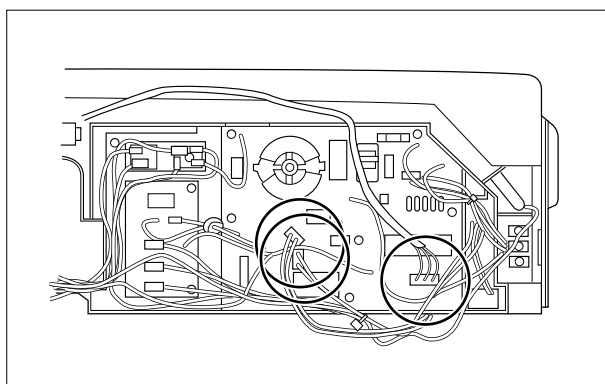
11. Remove two screws which are fixing the control box.



9. Remove four screws which are fixing back side of the rear cabinet.
And take out the rear cabinet.

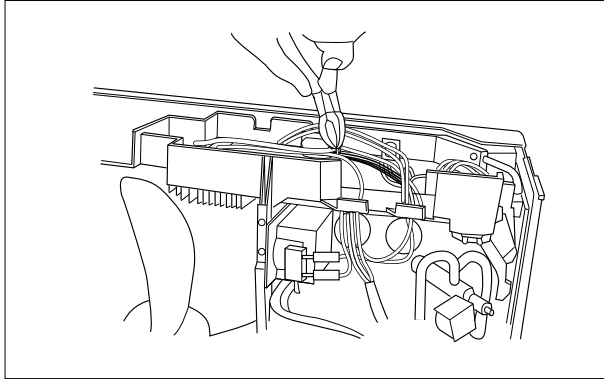


12. Disconnect following connectors.
(AU-X127E: Fan motor / Thermistor)
(AE-X127E: Fan motor / Thermistor / Reverse valve)

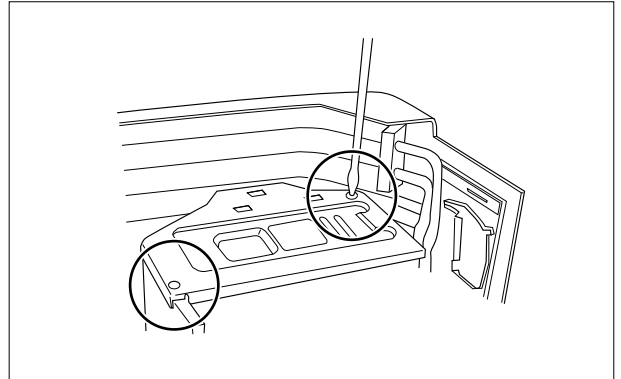


(Above Figure is AE-X127E)

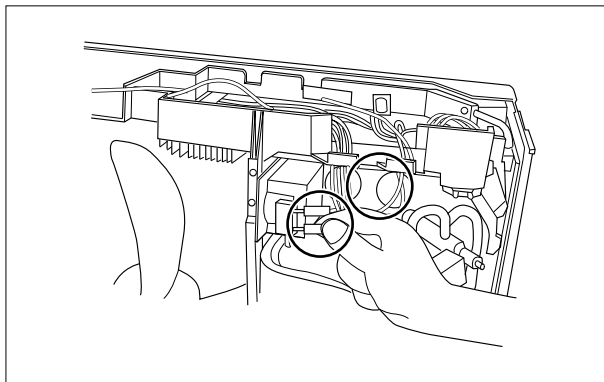
13. Cut the band.



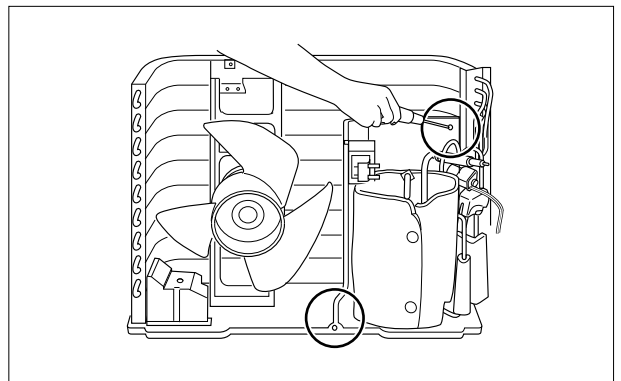
16. Remove two screws which are fixing heat insulator assembly. And take it out.



14. Disconnect five wires from the control box to the reactor and capacitors.
 (To reactor: two wires / To capacitor: three wires)

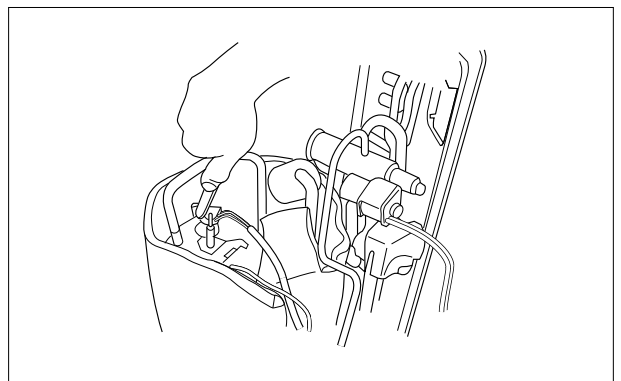


17. Remove two screws which are fixing bulkhead. And take it out. (Fixing the bottom part is used special screw)

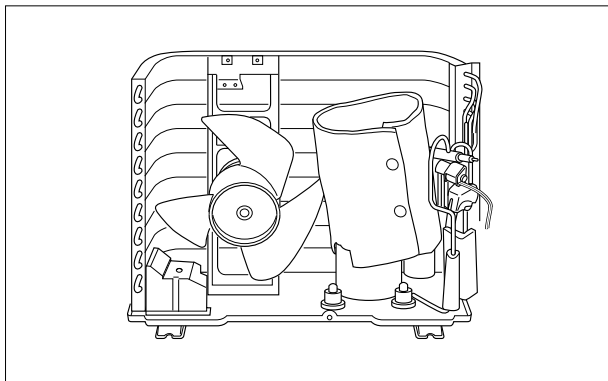


15. Take out the control box and put it just under.
 (The compressor cord is still wired)

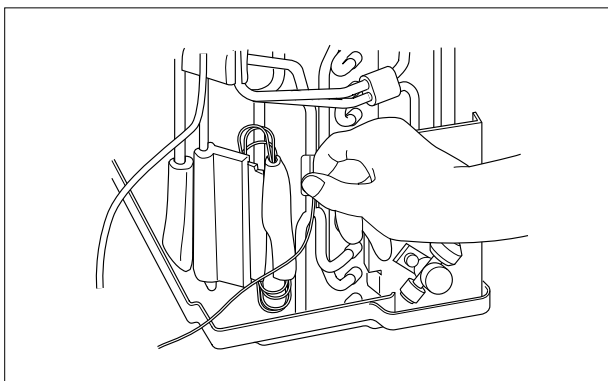
18. Disconnect the compressor cord. (Three wires)



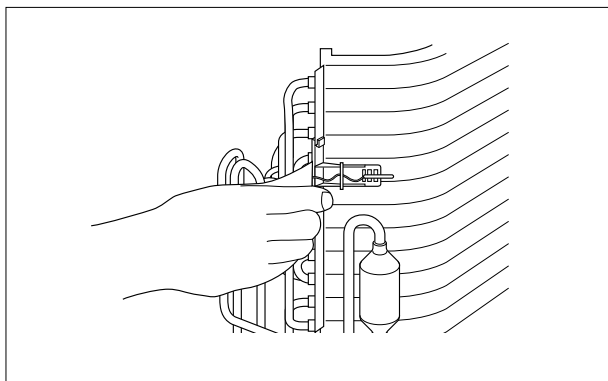
19. Take out the compressor cover.



20. Take out the thermistor from the tube.

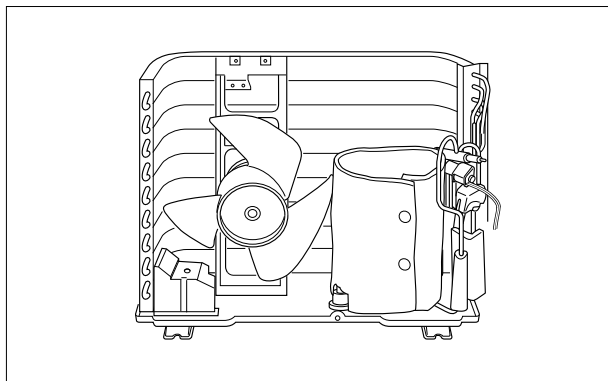


21. Take out the thermistor from the holder.
(AE-X127E only)

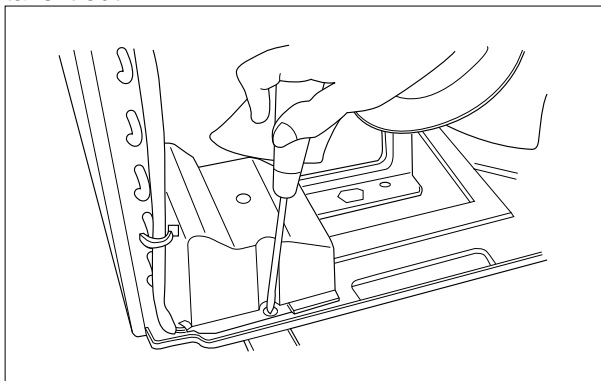


[Reactor]

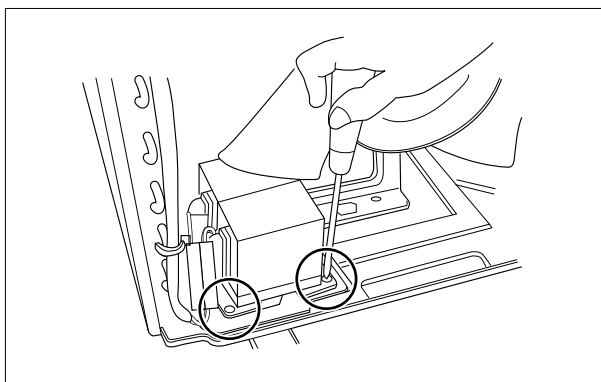
22. Disconnect the wires from the reactor to the condenser box.(4 wires)



23. Remove one screw which is fixing the reactor cover. And take it out.

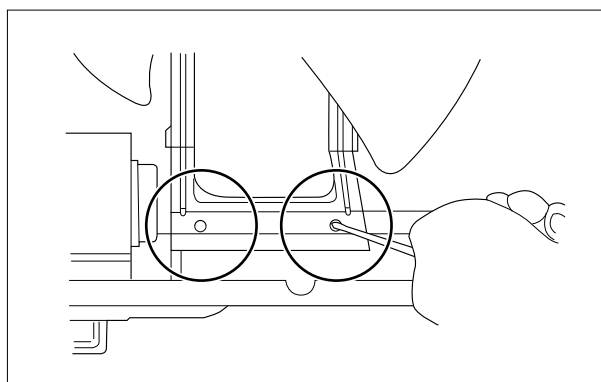


24. Remove two screws which are fixing the reactor. And take it out.



[Fan motor angle]

25. Remove two screws which are fixing the fan motor. And take it out.



SHARP®

Type
AZ-F1207

**Air Purifying Filter
for Air Conditioner**

Electrostatic Type (2-sheet package)

Applicable air-conditioner models

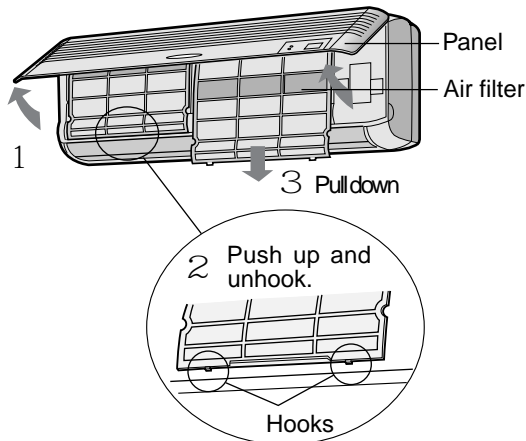
**AH-X127 series
AY-X127 series**

Precautions

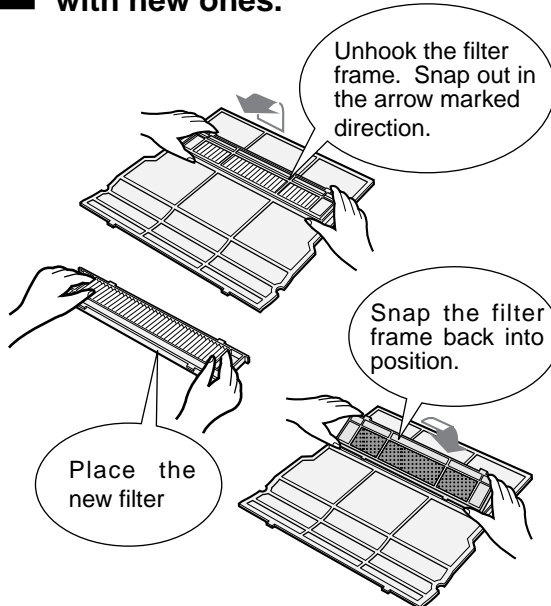
- » The filters are sealed in a plastic bag to keep their dust collection effect. Do not open the bag until using the filters. (Otherwise the filters' life may get shorter.)
- » Do not expose the filters to direct sunlight. (Otherwise they may deteriorate.)

How to Replace

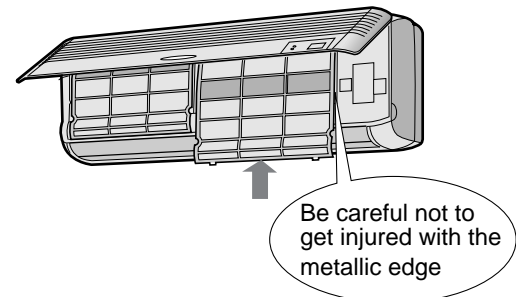
- 1** Open the panel and take out the air filters.



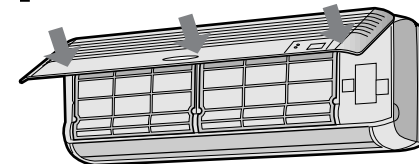
- 2** Replace the old air purifying filters with new ones.



- 3** Slide the air filters into position.



- 4** Close the panel.



- » Push the arrow marked position firmly to lock it in place.

Replacement intervals guideline

Replace the air purifying filters at the intervals of 3-6 months.

- » The dirty filters are not washable for reuse. The filters are available at your nearest dealer.

SHARP®

Type
AZ-F1257

Air Purifying Filter for Air Conditioner

Electrostatic Type (2-sheet package)

Applicable air-conditioner models

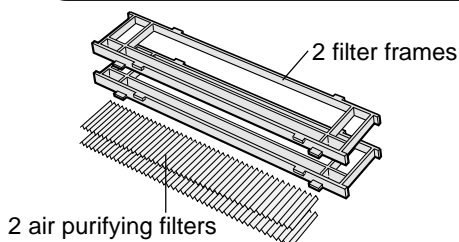
AH-X127 series
AY-X127 series

Precautions

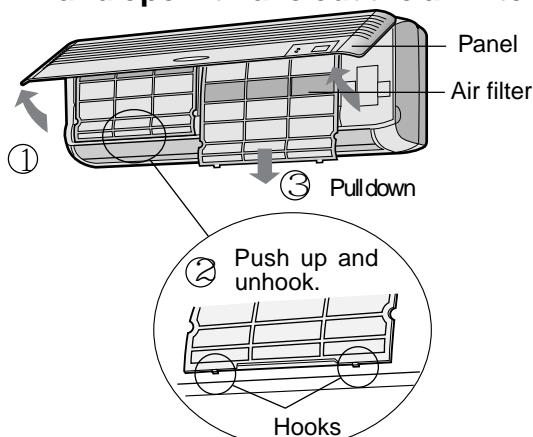
- » The filters are sealed in a plastic bag to keep their dust collection effect. Do not open the bag until using the filters. (Otherwise the filters' life may get shorter.)
- » Do not expose the filters to direct sunlight. (Otherwise they may deteriorate.)

How to Set Up

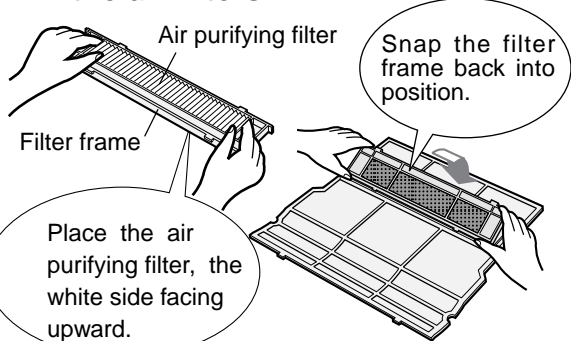
Supplies



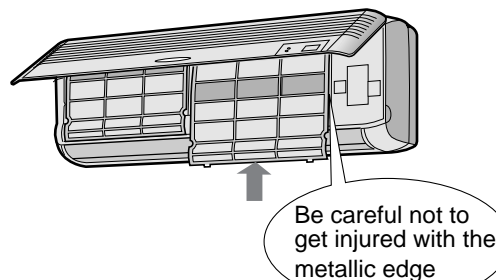
1 Hold both lower sides of the panel and open it. Take out the air filters.



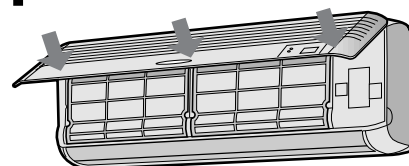
2 Set the air purifying filters on to the air filters.



3 Place the air filters into position.



4 Close the panel.



- Push the arrow marked position firmly to lock it in place.

Replacement intervals guideline

Replace the air purifying filters at the intervals of 3-6 months.

- The filter frames are reusable. (Replace the dirty filters only.)
- The dirty filters are not washable for reuse. The filters are available at your nearest dealer.

Replacement filter: Type AZ-F1207